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I

THE SERVICE OF PSYCHOLOGY TO EDUCATION

That psychology stands in a peculiarly close relation to education seems now to be generally acknowledged. We find, on the one hand, psychologists taking pains to show how their principles bear on the training of the young mind, and, on the other hand, teachers looking to every new development of the science of mind for hints on pedagogic methods. The recognition of this organic connection between knowledge of mind and training of mind is due in part to the labors of Herbart, Beneke, and their followers in Germany. Yet I am disposed to think that in England and America more is made of the psychological basis of education. Possibly this is due to the circumstance that we are not greatly enamored of systems, and have never developed a systematic *corpus* of pedagogic doctrine after the manner of the Germans. Dr. Bain's shrewd and instructive volume, *Education as a Science*, very happily illustrates the British dislike to what it regards as over-systematization. Thus it narrows the educational problem in a way that must seem shocking, say to a Kantian, while, within the limits so prescribed, it contents itself with working out a number of more or less disconnected applications of principle. This state of things is the psychologist's opportunity. The teacher who fights shy of cut and dried systems of "general pedagogics," will naturally turn for guidance to psychology, for the very good reason that its principles, being scientific and having been formulated without any reference to his special needs, can be fashioned by him into just as much of a system as he requires.

I believe that this turning to psychology on the part of teachers is the outcome of a sound instinct, or rather luminous intuition; and it will be my aim in the present paper to encourage them to maintain this Macedonian attitude. At the same time I have a strong impression that there is a good deal of misapprehension as to what kind of service psychology is fitted to render the young pedagogue. My experience as lecturer to teacher-students during a number of years has convinced me that these eager, enthusiastic learners, for whom I have a deep respect, and something more, expect what is unreasonable from our modern, much-talked-of science of psychology. They too often imagine that it is going to furnish them with a packet of useful recipes, which they have only to get up and their work will be rendered simple and easy like that of the cook with the unfailing memory. They need a guide to the psychological guide, if I may say so; somebody who will explain to them what psychology will do, and what it just as certainly will not do, in the way of disentangling the knotty problems of the schoolroom.

As might have been expected, this excessive leaning on the psychological staff has led to a reaction among the more enlightened educationists. There seems at this moment to be a good deal of skepticism abroad as to the value of psychological principles to the teacher. This skepticism is, in part, nothing but the outcome of that prejudice against everything in the shape of a scientific principle which is supposed to indicate special vigor of practical instinct. At least this applies to the unbelief, or, what is perhaps still more provoking to the enthusiast, the half-belief of head masters and others in England. Yet the reaction I speak of is something different from the resistance of practical instinct to scientific instruction. In this REVIEW, for example, we have had the significant spectacle of a trained psychologist setting himself to show that psychological principles cannot be directly applied to the concrete, ever-varying problems of education.[1] I believe that this view is

[1] I refer more particularly to the two articles on the theme "Is there a Science of Education?" in the EDUCATIONAL REVIEW, January and February, 1891.

shared by many thoughtful educationists, and that there is a tendency to look at psychological truths as trivial, commonplace, and unworthy of patient and prolonged study.

It is the special object of this paper to show that this under-trust in psychology is even less justifiable than the over-trust of the enthusiastic student. I shall try to make clear that while it is foolish to expect that a science so general and abstract as psychology can supply us offhand, after the manner of a logical machine, with the solution of any particular problem submitted to it, it is very far indeed from being a mere collection of useless commonplaces having no value as *directly regulative of educational practice.* I shall attempt to reconcile the opposite views by proving that psychology supplies to the teacher principles of a very high regulative value, though the application of them to the concrete problems of education requires a good deal of intelligence and skill.

I may assume it as generally recognized that psychology, if it comes in at all upon the pedagogic scene, does so only when we have made up our minds what we are driving at, and want to know how we are to set to work so as to realize this aim. Psychology can only tell us how minds behave, according to what laws they grow. As Herbart pungently put it, psychology will help the bad educator to attain his aim just as readily as it helps the good.[2] That is to say, all that psychology can do is to justify the educational appliances that we are bringing to bear, the mental action that we are setting up, by explaining the effects of this action on the growing mind.

Now, without making any extravagant claims for the science, I think that no one versed in its latest developments can doubt that it is in a position to give the teacher a certain amount of solid and accurate information respecting these matters. I am here referring to what is peculiarly modern psychology; that is to say, a science of mind which views its processes in their connection with brain-action, which seeks to

[2] "A merely psychological pedagogic can tell the bad just as well as the good educator what he is accomplishing: it can be used by each for his own objects."—*Briefe über die Anwendung der Psychologie auf die Pädagogik.*

explain its growth by help of the latest results of biological research, and which aims at exactness of result by means of rigorously conditioned experiments. Thus the laws of the correlation of mind and body in their successive phases of development are of the very highest value, and indeed a matter of supreme necessity to every teacher who wishes to avoid disastrous consequences to mind and body alike. In close connection with this I would emphasize the newer biological conception of the child. How full of meaning for the educator is such a discovery as that of Dr. Robinson, that a newborn babe can support itself by its hands for a minute or more. We are rapidly coming to see that the infant brings with it rudimentary traces of its animal descent; that it is as yet merely a bundle of inherited potentialities of very unequal antiquity and corresponding degree of stability, and that it is for its environment to determine which of these shall fail from disuse, which shall be developed, and to what degree of strength and completeness. Does it not invest the problem of education with a new gravity to know that we are selecting what is best worth preserving from a multitude of mind-rudiments, that we are singling out what is precious, because human, from its *entourage* of brute instincts? Rousseau's idea of a perfect creature deposited in our hands by its creator for us to let grow according to its beautiful natural bent, is pretty enough, but it surely robs the function of the educator of a large part of its dignity.

Under this biological view of the child we must include what is perhaps the most valuable contribution yet made by science to pedagogics, namely, the theory of individual development, physical and mental. Children's minds exhibit so many variations, in their mode of expanding, that it requires some little attention to recognize the fact that there is a typical plan of growth, that all normal minds run through a similar course of expansion, and that the successive phases of this typical course are determined by organic laws, more particularly the laws of development of the nervous system. Some of these laws are still very imperfectly understood; for exam-

ple, the temporal order in which inherited nervous dispositions, such as those underlying particular aptitudes and tastes and particular moral proclivities, become active; yet we already know enough about the general course of things in the life-history of the human organism to save us, if we are only wise, from a good half of the blunders of certain "methods" of intellectual and moral instruction.

And, here, I should like to add a word to what Professor Royce has written, in the articles already referred to, respecting that new scientific observation of the manifestations of mind in the child so well represented by Professor W. Preyer's now classical monograph. The special object of these investigations is to fix the precise date of the appearance of new mental acquisitions, such as movements of the eyes, hands, use of words, etc., and also the rate of improvement of these acquisitions. Such observations, when sufficiently multiplied to enable us to discount individual peculiarities, will help more than anything else in the formulation of a precise theory of the typical plan of development. If now we come to those psychical exercises by which the normal growth of human minds takes place, we find that here, too, psychology can help us with definite laws. Let me in this connection remind the reader of the new light which experiment is throwing on the simple and fundamental type of mental activity, attention to the presentations of sense. Surely, if there is one process which a teacher needs to understand, it is the response of the mind to an external signal. How rich in pedagogic suggestions is the fact brought to light in these researches, that when the mind is beforehand poised or focused for a particular impression, the process of clear apprehension is reduced to minimal limits of time. May not all teaching be said to accomplish its purpose by exciting the favorable attitude of expectancy, that alertness of mental pose which expedites the hearing of the exact word, the seizing of the precise point of the question, and so forth?

In close connection with the process of attention we have the exercise of discrimination and assimilation; or, as it is

sometimes called, recognition. Here, again, the new experimental psychology is bringing out results full of importance to the teacher. For example, by help of recent experiments the effect of practice in improving a person's power of discriminating the finer *nuances* of colors, tones, etc., is being reduced to something like an exact law. In recognition again, we are coming to see how the rapidity of the process, as when we recognize an object presented to the eye for only a fraction of a second, is affected by such circumstances as the simplicity or complexity of the object presented, the interval of time that has elapsed since it was last presented, and so forth. In this way we are learning the conditions of recognition to an extent that must have important bearings on pedagogic method; for example, in lessons on the alphabet, and on the musical scale. One phase of this process of recognition has a peculiar pedagogic interest; I refer to the effect of repeated presentation on the attention. As every thoughtful teacher knows, to repeat an impression—*e. g.*, to show an object a second or third time, to reintroduce a quotation—will under certain circumstances arouse the pupil's attention. Indeed, the rule that in presenting new intellectual material to the learner we ought to bring out all its latent familiarity by tracing out its analogies to known facts, proceeds on this principle. As Herbart emphatically and perhaps exaggeratedly put it, we attend to that which our minds can assimilate or appreciate. On the other hand, frequent repetition, as in showing a pictorial illustration over and over again, so far from rousing interest, is wearisome. What the teacher specially requires to know, therefore, is the precise conditions which underlie these opposite effects. It may be expected that experimental psychology will soon come to his assistance by determining the limits within which each of the effects occurs.

Other directions of this new psychical activity full of promise for the teachers are the investigation of the processes of association, of the effect of repetition on reproduction. Some of Professor Ebbinghaus's conclusions on this point look, indeed, as if they had been specially prepared for the school-

room. How important, for pedagogic purposes, is the result reached by him in estimating the time needed for committing to memory a series of syllables, that three repetitions to-day reduce by one; the number of repetitions required for learning to-morrow in other words that a given amount of memory-work got through at a particular time effects a saving of about one-third of this amount on the taking up of this work twenty-four hours later.[3]

I have here confined myself to the new experimental investigations of one side of mental activity, namely, the intellectual processes. If space allowed, much might be said on other branches of psychological inquiry, for instance, that which specially investigates the first manifestations of such instinctive feelings and impulses as fear of animals and strangers, the primitive forms of movement carried out by the hands, and so forth. There is reason to hope that a more careful scientific observation of children, aided by biological theory, will one day supply the teacher with a natural history of the child's character just as definite and complete as the natural history of its intelligence.

In this elucidation of the educational bearings of our newest psychology, I have touched only those departments of the science which deal with the normal pattern and mode of growth of the child-mind. In addition to these, there are other branches which specially investigate deviations from the normal type of mind. Certain portions of this "pathology of mind" also will be found to be of the highest consequence to the educator. I need only refer to what is now known respecting the varieties and causes of disturbances of memory and of volition—a subject well illustrated in Professor Th. Ribot's well-known monographs. The fluctuations to which childish life are in a special degree subject are apt to betray themselves in slight disturbances of normal brain-functions similar in kind to those which appear on a large scale in abnormal conditions of mind. Indeed it seems to be coming to be recognized that the educator

[3] See his interesting volume *Über das Gedächtniss*, especially p. 78 and following.

requires almost as much a knowledge of the mind's pathology as of its physiology.

Enough has probably been said to illustrate my point, which is that psychology, as now studied, comes at a vast number of points into close organic contact with the problems of the educator. Indeed, I can well imagine that some of my readers may be disposed to accuse me of having proved too much; of having set up the unreasonable because impracticable demand that the teacher should acquaint himself with a whole aggregate of exceedingly complex and difficult branches of scientific research. I do not greatly care if this last is the impression left in the reader's mind. If only the existence of the points of contact be recognized, I have little doubt that a way will be found of bringing the most important results of these scientific departments within the reach of the teacher.

But my work is not yet done. It has still to be shown that the kind of guidance which these psychological principles supply is of real practical value. And here I should like to meet the argument that the truths of psychology are of too wide and general a character to be of any direct service in the practical work of education. This is, I conceive, an error involving a misunderstanding of the true relation of scientific principles to practice. Let us take the well-known laws of memory, such as the effects of interest, repetition, and association. These are indubitably laws of the very widest operation. They happen, moreover, to be the formulation of truths which have become a part of the common knowledge of educated people, and hence are apt to strike the student as commonplace. Yet I will make bold to say that almost any school you chanced to enter would supply you with examples of the violation of these simple self-evident principles. For be it noted (and this is the essential point) that when we talk of applying psychological principles to teaching we mean that the teacher is making the utmost use of these principles, that is to say, is producing his result most rapidly, most economically, according to the requirements of these principles.

Hence all exercise of the memory, as in teaching the rules of a language, which involves more time and more fatigue than it need do, may be described as psychologically wrong.

But how shall we know when we have lighted on the most efficient way? Here comes in the part of the pedagogue himself—of the teacher of pedagogy first, and then of the learner. A principle may be clear and definite enough in itself, yet before we can get any practical help from it we may have to take a good deal of trouble in the shape of thinking out its particular applications. The real business of the teacher of pedagogy is to take principles from the psychologist, and to clothe them with concrete and practical illustrations. Unless this be done the knowledge of the principle is useless, if indeed it is not positively harmful by deluding its possessor into supposing that he possesses an educational compass. I fear that too many of our young teachers, who get up their psychology hastily for examination purposes, remain mere memorizers of barren scientific formulas; that they have no inkling of the manifold, far-reaching, all-pervading application of these simple laws to the concrete work of teaching. A good deal more time must be expended on exercising our young teachers during their student-course in this application of principle. How much thinking, for instance, must a student go through before he can recognize even the more important practical corollaries of the self-evident, trite principle: attention must be excited and understanding furthered by connecting new and unknown facts with what is already known. A short course of lectures might with profit be devoted to the work of testing current methods of teaching by reference to this principle alone.

So much for the objection that scientific principles are of too general a character to be of any real working value. No doubt, so long as they retain the form of abstract scientific propositions, they seem to be apart from our practical interests and aims, floating in the upper air. But our business is precisely to bring them down from this altitude to the level of our workaday world, to transform them into the practical

shape of rules; and this business requires almost as much patient thinking out as the original discovery of the principles.

Another difficulty remains. Psychology is at best a reasoned account of the common or typical mind; every teacher, however, has to do with particular samples of the individual mind. Hence, it is argued, psychology can never be of any considerable service in working out the actual problems of education. Let us for a moment try to grapple with this objection, which, on first sight, seems so formidable as to block the way to all thought of a psychological pedagogy.

First of all, then, I would point out that there is an illusory appearance of gravity in this objection. There are not two sorts of mind, the general mind and the individual mind, having nothing whatever to do with one another. Even Plato allowed that the poor perishable particulars participated in the universal reality. A child is a particular embodiment and illustration of the common characters and common laws of the human mind, and the educator has always to think of the child primarily and mainly under this aspect. That is to say, what the educator is most concerned with is to develop in each of his pupils the common pattern of what we call a complete normal mind. To this extent the laws of mind, so far from being useless to him by reason of their general character, owe their main utility to this very circumstance. The truth of this proposition may be seen at once by considering how the value of psychological observation disappears as soon as we are in any doubt as to the general validity of the conclusion drawn. A frequent objection on the part of teachers to a careful record of the development of an individual child, as that of Professor Preyer, is that the results reached may not be found to hold good of all children. In other words, what the teacher requires is such an account of the processes of mind as will be found to include any particular minds which he may be called upon to deal with. It is not, then, the universality of psychological truths that stands in the way of our employing them as guides in our educational work. Universal principles, that is to say principles valid for all cases alike without

respect of person, are precisely what we need; even though, as I have tried to show, a good deal of concrete elaboration may be necessary before the full fruition of their practical helpfulness is possible.

Nevertheless, while I would thus emphasize the fact that a theory of education, if it is to be of wide applicability, must be based on general laws of mind, I am fully aware that a large part of the business of the teacher is, or rather ought to be, the understanding and the managing of the distinctive peculiarities of this, that, and the other individual child. The almost infinite diversity of childhood, its capacity of giving us ever new surprises in the way of unclassifiable traits or groups of traits, is at once the glory of our race and the despair of its pedagogues. Education, though aiming first and mainly at realization of type, dare not for a moment lose sight of the fact that humanity can only realize itself through a rich diversity of intelligence and character. Hence every individual child ought to be made the subject of a profound, searching study, as thoroughly penetrating as that given by the savant to some new and priceless specimen on which he intends to write a monograph. The weakest point in our modern system of school education, with its large classes, its concentration of vision on collective results, its subordination to the inspector and the examiner—each of whom, like Nature, is apt to be "careless of the single life"—is that the teacher does not know his individual children, and hardly makes a pretense of cultivating their special and distinctive capabilities.

And here, if I may be allowed a moment's digression, I should like to say that I would gladly banish the expression "the average child" from contemporary pedagogic literature; it is the product of an age which cares only about things in the lump, which is over-hasty in snatching at results, and consequently mechanical and inelastic in its mode of procedure. The ideal man, the ideal woman, whom, so far as we are truly educators, we must seek to develop in the child is, as Jean Paul has taught us, an ideal individual.

This being so, I consider it obligatory on anyone who

would claim for psychology a high degree of pedagogic utility to show that the science can assist in the educational study and development of the individual child.

There are two ways of getting at an individual mind, which we may roughly distinguish as the intuitive and the analytic or scientific way. The former is illustrated in the shrewd insight of a lawyer into the mind of his client, and in the far deeper understanding which sympathy gives into the mind of a friend. It is the direct product of observation, unreflective, surprisingly exact up to a certain point, but apt to be narrowly limited. In contradistinction to this, the analytical study of another's mind not only observes but carefully takes apart and classifies what it observes. Sympathy in all its higher forms, by prompting to understanding, takes a step in the direction of such analysis. It is curious, indeed, to note how much time a warm-hearted, intelligent woman is ready to devote to discussing the several peculiarities of a friend's character. Here, it is evident, analysis, that is selective attention to particular constituent features, plays a certain part. Yet this sympathetic penetration, fine as it sometimes is, does not amount to scientific analysis. This last implies that the constituents specially attended to are selected because of their elementary character and fundamental importance, and not merely on account of their æsthetic or practical interest to the observer; and further, that there is at least an approach to an exact measurement of the capacities considered. All observation which can be reduced to an accurate descriptive form, as that in botany, illustrates this analytic process.

Now it is certain that a good deal of education of individual character has been carried out solely by the first or intuitive way of studying minds. An extraordinarily fine sympathy has sometimes given a teacher such a full luminous insight into the possibilities of a child's nature as to lead him straight to the right method of developing that nature. Yet this kind of insight is not enough. It knows nothing of the distinction of the elementary and the complex, the original and the derivative; it does not understand how a particular faculty

or aptitude is put together, and it takes no measurement of the exact strength of the endowment as compared with that of other tendencies in the same child.

The advantage of a scientific or analytic study of a child's mind is that it compels us to be exact, to count up the sum of forces which confronts us, and to measure one against another. Thus, if I am proceeding in the scientific way, I shall not be content to discover that a particular child is observant; I shall take pains to find out what constituents of the so-called observing faculty are specially strong, and what others relatively weak—whether, for example, the child has a special field of interest within the limits of which it is observant—so as to know precisely the extent of its observation. A careful minute examination of individual aptitudes and tendencies, such as is required for an intelligent cultivation of individuality, will require us to subject the child to certain measurements, as the very useful anthropometric tests invented by Mr. Galton.

I have assumed that the educator is concerned merely to ascertain the original instinctive powers and dispositions of a particular child. But in truth his problem is a larger one than this. He needs to study the child's mind as a changing mind, modified by surrounding influences and by its own activities. Thus, even in the preliminary inquiry at the beginning of school-life, some attention ought to be paid to the factors of the home-life, and the effect of these on intellect and character. And after school-life has begun there should be something like a regular observation of change, and a registering of the successive changes in the form of a life-history. Only by a methodical series of observations of this kind can the educator hope to ascertain with some approach to certainty the precise effect of particular lines of school-activity, particular class-surroundings, and so forth, on the individual.

Enough has probably been said to show that sympathetic understanding of childhood, valuable and indeed essential as it is, is not enough for grappling with the problem of adjusting the educational process to the special needs of a particular

child. The teacher must temper the warmth of sympathy with the attitude of cold scientific scrutiny. He must be ready to pierce and divide the living, lovable mind before him with the analytic scalpel so as to see its peculiar structure, the special disposition of its elementary cells and fibers.

And here comes in a new use of psychology. For in this analytical investigation of individual minds we are, it is evident, calling in the aid of general psychological distinctions. In order to single out any elementary factor of mind for special observation and measurement, I must have acquainted myself previously with the general constitution of mind, that is to say, I must have gone through a course of analytic psychology.

It would seem, then, after all, that psychology has something to do with the individual and the concrete. Though primarily, on account of the processes of mind under their common aspect, it puts us on the right track for ascertaining the peculiarities of X's mind, Y's mind, and the rest. And the explanation of the paradox is simple enough. What we call an individual mind is constituted by some special, and probably unique, grouping of certain common elementary forces or tendencies. Thus A B's intelligence is made what it is by the sum of his sense-discriminations, his retentions, and so forth. Accordingly, our only chance of getting a definite idea of the pattern of such an individual mind is to apply to it our general method of psychological analysis, so as to successively investigate the strength of each of the fundamental constituents.

And here I should like to add that the same experimental psychology which is helping us to understand the common type of mind is also pointing the way to a more penetrating and fruitful investigation of individual characteristics. The attempts to measure the elementary mental processes have brought to light the fact that they are subject to certain variations in the cases of different minds. Thus the limits of discrimination of tones, colors, and so forth, vary considerably as we pass from one individual mind to another. The same

apparatus and the same methods of investigation which are being used to elucidate the common mode of working of our minds can be just as well made use of in a comparative measurement of individual minds. I think, indeed, that the time has come when the educator may look to the psychologist for direct guidance in this important part of his work, viz., the more precise determination of the particular capabilities of his individual pupils.

I may, no doubt, seem to be setting up a preposterous claim on the part of psychology. Life is short, it will be said, and the teacher must know other things besides the laws of mind. I am fully aware of all this. I agree with those who say that a study of psychology by itself will never make a person an intelligent teacher. There must be experience and trained practical skill, there must further be some knowledge of the past history both of educational thought and of actual systems of tuition. Yet I do most certainly contend that next to practical capabilities, including such familiar yet all too rare qualities as common sense, tact, and sympathy with child-life, psychological study of the kind here indicated, that is to say study of principles in their deductive application to the concrete problems of the schoolroom, is the one thing needful. And I will bring my plea to a close by expressing the hope that the time is not far off when all Normal Schools and Training Colleges will insist on testing their students, not merely in the critical application of psychological principles to general methods of instruction, but in the turning of psychological analysis to practical account in a methodical observation and tabulation of the distinguishing mental characteristics of individual children.

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II

NORMAL TRAINING IN WOMEN'S COLLEGES

It is now a little more than twenty-five years since a college for women was founded in the United States. From the first the new enterprise attained a high degree of success, whether as measured by popular appreciation or as tested by the strictest scrutiny of its results; and in the face of the fast increasing demands of the older colleges, and in spite of skepticism and incredulity, the educational system of the United States has been rapidly and strongly developed along the line thus taken. Without considering the coeducational institutions at the West and South, we already have a goodly number of colleges for women alone, well endowed and equipped, largely attended and of excellent repute for scholarship. The American people may thus be said to have had a quarter-century's experience, upon a pretty wide scale, of these educational advantages. The length of that period has afforded opportunity for ascertaining whatever defects and limitations may have existed in this type of institution as first founded; and its close offers an appropriate occasion for inquiring whether important alterations require to be made, in the interest of the pupils especially concerned, or in the interest of the general community.

Since the first colleges for women were founded, great changes, economic and social, peculiarly affecting the condition of women, have taken place in the life of our people. Do these changes require any considerable alteration in the general scheme of education for the young women of America—any alteration, that is, farther than would be involved in the natural development of that scheme according to its original idea, and in the general, gradual movement of college discipline and training for students of either sex indifferently? Changes have, indeed, been seen to be required. and

some of them have been more or less rapidly effected in colleges for women and in colleges for men; but has any reason for change appeared which peculiarly affects the former class?

And, first, what was the scheme of education adopted in the several institutions of this kind which came into existence during the period in question? Speaking generally, it was nearly identical with that which had long been tried and approved in the education of young men. So far is this true that it has become a familiar claim, on the part of the more ambitious of the new colleges, that their curriculum is in all respects coextensive and equally difficult with that of men's colleges.

I shall not pause to inquire whether this object was in itself desirable; whether young women should be called upon to do in four years all which young men may, for their good, be required to do in the same time; whether exceptional consideration be not due to the greater delicacy, sensitiveness, and liability to nervous derangement on the part of the female sex. I shall not even stop to ask whether this claim was ever, anywhere, made good, except in the case of highly selected bodies of young women; or whether, through conscious or unconscious relaxations of the nominal requirements, the work exacted, in even the most advanced of the women's colleges, has not, in fact, mercifully fall ensomewhat below a full equivalent of that done in the other class of institutions. I desire here only to note the fact that such a claim has been freely and widely made, as corroborating the statement that, in general, the scheme of education for women adopted twenty-five or twenty years ago, was substantially that which had been approved for the training of young men.

One exception, indeed, requires to be taken to the assertion that the curriculum of the new institutions was meant to be, alike in substance and in form, identical with the traditional curriculum of the American college. This exception relates to the studies and exercises having reference to the preparation of the student for public speaking. But even this modifi-

cation was in a direction already clearly indicated among the men's colleges themselves by the gradual decay and disuse of declamation and debate. This has steadily gone forward since that time, until now, in the most advanced of the older institutions, preparation for public speaking, and even for public writing, is given but little attention. So that we may fairly say that, in the most important respect of their original difference, the colleges for men have come to the colleges for women.

The changes which I have referred to as occurring peculiarly to affect the condition of women, within the period since these colleges were founded, are:

First, the greater call for women to interest themselves in public affairs; and

Secondly, the procrastination of marriage and the restriction of the marrying class, throwing upon women, in a degree before unknown, the necessity of independent self-support.

In speaking of the greater call for women to take part in public affairs, I have no reference to the current agitation for female suffrage. Altogether irrespective of this is the peremptory demand upon the educated members of that sex, in these later days, to concern themselves with matters once wholly managed by men. In addition to the rapidly growing freedom with which women are admitted to school boards and committees, and to a participation in the management of public institutions of charity and beneficence, one has only to look about him, in his own town or city, and see what the educated women of the community are doing; one has, indeed, only to peer (by permission, of course) into the engagement book of his wife, sister, or daughter, to get a somewhat startling view of the enlarged activity of the woman of to-day, making a demand upon her, if those duties are to be well performed, if, indeed, her accession to no inconsiderable part of man's traditional work is not to be injurious rather than beneficial, for more training and an ampler equipment upon that side than was required, or was possible, a quarter of a century ago.

But this want has not been left thus long to be supplied. Men's colleges and women's colleges together have, during the whole of the period in question, been applying themselves to do that which will largely meet this need of the times. Not, indeed, that the colleges have generally made any considerable changes in their curriculum professedly, or perhaps even consciously, in the interest of a better preparation of either women or men for public affairs. The changes in this direction which have taken place have been made because the tendency in education, upon purely educational grounds, has, of recent years, set strongly and steadily toward those studies and exercises which are of a nature peculiarly to qualify the student for social and political duties.

The assertion that the changes in the curriculum of the American college which have so fortunately met the freshly developed want in education on woman's side, have not been due to such a purpose, or even to an unconscious recognition of the new need, may perhaps be questioned; but I believe it to be true. Even in men's colleges, the rapid extension during the past twenty years, one might almost say, the first introduction within that period, of history, economics, and statistics, has not come from the desire on the part of teachers and administrators to fit their pupils better for public duties. It has taken place because history, economics, and statistics had, in the course of educational development, become studies which would crowd themselves into the colleges, whether or no; which could no longer be kept out; which made an imperative demand for room in every institution devoted to liberal arts. Before that time those studies, as known in the United States, had not their methods developed—had not their qualified teachers. Those methods were not developed, those teachers were not trained, because either American women or American men needed such studies to fit them for the social and political life of their country. Those methods were, in fact, not developed, those teachers were not trained, here in America at all. It was abroad, it was in Germany, where those studies were pursued as a necessary part

of a great and comprehensive scheme of intellectual cultivation, that this was done.

History, economics, and statistics became college studies in America, not because the want of them was consciously felt more than at any previous time in our history, not at all because the need of them had then first specially appeared in the education of women, but because those studies had, under altogether other and foreign impulses, assumed an educational character which made it impossible to keep them out of any institution assuming to offer a liberal training, and because a host of young Americans, taught in the universities of Germany, were returning to their native land as the missionaries of the new cult.

But whether we adopt or reject this view of the cause of the rapid rise and growth of the historical and political sciences in our institutions of learning generally, it certainly cannot be claimed that the result was, in any degree, due to the newly developed want of women's colleges. Nevertheless, that want, thus suddenly occurring, has been most fortunately supplied by those studies making their appearance, very opportunely, it must be confessed. Although history, economics, and statistics first came into America through the colleges for men, they rapidly made their way into the women's colleges, so that now, in the most advanced of these, the new studies are cultivated almost as assiduously as in the institutions for the other sex; and this movement is still in progress. The catalogues of women's colleges show an increasing disposition toward the further recognition of the historical and political sciences as instruments of liberal culture.

I think we may conclude, then, that the change upon what we may call the political side, in the condition of American women does not call for any important alteration of the curriculum, other than has been involved, to use my own phrase on starting out, "in the natural development of the scheme according to its original idea, or in the general gradual development of college discipline and training for students of either sex indifferently." The required modification has, in

fact, already taken place, not at all with reference to the special needs of American women, but under the general educational impulse of the age.

It is a more serious and difficult question, whether the other change which has been indicated as affecting the condition of women, through the procrastination of marriage and the restriction of the marrying class, especially among the educated and cultivated portion of the community, throwing upon women, in a degree never before known, the necessity of independent self-support, does not call for extensive modifications of the curriculum as established when these colleges were instituted. The reasonable expectations, the usual prospects for life with which young women went to college when that opportunity was first offered them, were widely different from what they now are. Not only is the time of marriage long procrastinated, not only is the proportion of celibates increasing throughout the total population, but among the educated and cultivated classes these tendencies are felt with a force which is rapidly changing our social ideas in many particulars, and is fast bringing in new economic conditions.

Here again, however, a modification of the college curriculum, under the general educational influence of the age, and not at all for the purpose of meeting the newly developed need in woman's training, has actually, to a considerable extent, taken place, of a nature to supply that want. Chemistry and physics have become important studies at the leading colleges for men during the past ten or fifteen years, not because it was expected that the students would use these sciences professionally, but because these sciences had assumed an importance, educationally, which would not allow them to be longer kept out, or, if admitted, to be confined to the petty proportions of thirty years ago. For the same reason, and no other, chemistry and physics have extended themselves rapidly to women's colleges, and are every year asserting themselves more and more in the curriculum and the catalogue. Here again we have a development of women's colleges which was eminently opportune, although it

took place without reference to the changes in the condition of women which made such a modification of the traditional courses peculiarly conducive to the training of women for independent maintenance.

The question I have now to ask is: Whether any change not in the nature of a development of the original scheme of women's colleges and not shared by the colleges for men, requires to be brought about in consideration of the increasing need which women have, in these days, for self-support. The subject is one regarding which something might doubtless be said upon both sides; yet for myself I strongly hold to the opinion that, with a single important exception to be hereafter noted, those who are charged with the administration of the higher institutions of learning for women should continue to interest themselves solely in the question, What studies and exercises will conduce most to sound mental discipline, to general culture, and to the acquisition of a considerable body of correct information upon subjects of political, social, and domestic importance, not troubling themselves at all to give their pupils industrial arts, or preparing them in any way specially and technically to enter "the market for labor." I heartily believe that, with the single possible exception to be noted, the studies and exercises prescribed for young women, in their college courses, should be purely educational; and that the time has at least not yet come when the conductors of these institutions are called upon to ask what studies and exercises will best fit young women for any special line of remunerative work.

My reasons for believing that the colleges for women, and all of them, should, at least in the present and the immediate future, confine themselves to the proper college function of mental discipline and mental development, are as follows:

First. Because the presumption is still happily, in spite of all, largely in favor of the ultimate devotion of woman's powers and faculties to domestic life and duties, in which general training will count for much, and special training for but little.

Secondly. Because the occupations of a business character which are as yet freely opened to that sex are generally those in which woman's tact, dexterity, and quickness of apprehension will enable her most readily to dispense with previous special or technical preparation, and in which, consequently, general training will tell to the utmost.

Thirdly. For the comparatively few women who have a strong "call" to technical professions of a severely scientific character, opportunities are already provided at several institutions of high grade which admit the members of both sexes, without discrimination.

Fourthly. For certain of the higher professions, if I may venture to call them so, in which women take a part equal, if not superior, to that taken by men, opportunities for training are now afforded in special schools, which exist in great number and in great variety, often fully equipped and well administered. To students, for example, of music, drawing, painting, and, under my breath be it spoken, of the drama, this country presents advantages as great as could reasonably be expected in a civilization as new as ours. If more is to be looked for, it must be through the progressive improvement of these special native schools or through foreign residence and study.

I now come to the one important exception, already several times intimated, which, in my opinion, requires to be made to the principle that the colleges for women should still remain, as they have been in the past, nonprofessional, wholly educational. This is, indeed, my real subject on the present occasion. That exception relates to the training of teachers. Already the leading colleges and universities for men are turning their attention to this urgent need of the times, and are establishing chairs of pedagogy for the instruction of their undergraduates in the theory and history of teaching. I believe that the colleges for women should go still further in this direction, so that each one of them shall become, in a high sense, a normal school.

The profession of teacher is not only of vital importance to

the community, but it is that one of all the larger professions which is, by general consent, mainly relinquished to women. To fill the vacancies in the ranks of the teaching profession, occasioned by all causes, and to supply the additional assistants required by the growth of the country, at least twenty thousand young women should each year present themselves as qualified to undertake these onerous and responsible duties. To meet this tremendous demand, the so-called normal schools are striving with the best of their powers; but they cannot do all that is required, while much which they do is less than well done. Held down, as they are, by the presence of large numbers of pupils who are not even graduates of high schools, and obliged to devote no small part of the time and strength of their staff to elementary instruction, not in the teaching art, but in the subject-matter of what is to be taught, these schools cannot do themselves or their better pupils justice; and many of those whom they graduate are only accepted by school boards and committees because the supply is so painfully inadequate. The number of teachers for whom there is a present active demand, for giving instruction in the higher branches of learning in the secondary schools of the country, and for bringing inspiration into the more fortunately circumstanced grammar schools, would take up every year all the graduates of all our women's colleges, and more if more were to be had.

I offer, then, this plea for normal instruction and training in all colleges for women. The need of the country is so urgent that some sacrifice of the strictly educational character of these institutions might properly be submitted to, were that necessary, in order to secure a higher professional result in a department of public service so peculiarly woman's own, and so vitally important to the welfare of the people. But, in fact, I do not believe that the introduction of the studies and exercises proper to this object would impair—on the contrary, I believe it would greatly improve and highly exalt, the truly educational work of these institutions.

I would not have the colleges for women teach the mere

arts of the pedagogue, which may, without offense, be called the knacks of the trade, or undertake to anticipate the necessary work of experience. But I would have the history and the philosophy of education made prime subjects of study. I would have the psychology of teaching taught. I would have the mind, in its powers of perception, observation, reflection, and expression, studied as objectively and as scientifically as specimens in natural history are studied in the classroom and the laboratory. The order of development of the human faculties, the child's way of observing, the child's way of thinking when untaught and untrained, the ways in which the child may be interested and drawn out of himself—these should be the matter of eager, interested investigation. Surely, they are as well worthy to be the subjects of study as are the processes of vegetable or animal growth, as the order in which the leaves are set upon the stem or as the mechanism of the human body.

The art of the teacher, the art of simple exposition and familiar illustration, the art of putting questions and stimulating thought—this art should be both studied and practiced, practiced and studied, year by year. I would have the pupils frequently called to assume, for a brief space, the responsibilities of instruction. I would have small classes formed to investigate problems in education, starting questions, stating propositions, adducing facts, discussing principles, consulting authorities, answering objections, under the guidance of teachers who should have their own minds directed upon the end of training their scholars, not merely to communicate thought, but to create it.

Does it seem that the dedication to such uses of a portion of the time at the command of the faculty would, in the result, interfere with the educational character of the curriculum? Would not the remainder of the four years' course be worth, even for mere acquisition alone, as much as the whole formerly was? I surely think so. I believe that what has been suggested is the very thing most needed to give its best effect to the studies in classics, philosophy, mathematics,

natural science, history, and politics, which make up the traditional courses of our colleges.

That such a training would fit the graduates of women's colleges to take up the work of the teacher with great advantage, no one will question. They might at first be found to be, in mere smartness, glibness, self-confidence, and ease of bearing, behind the graduates of the typical normal school; but their broader scholarship and higher culture would qualify them, in a far greater degree, to reap the fruits of experience, and they could not fail, after a brief period of apprenticeship, to take their place among the most useful members of the profession.

But what of those who are not destined to enter the ranks of that profession, but are to find their life's work at home, in the domestic circle? Need the question be asked? Could any nobler preparation for the duties of wife and mother be devised than that which I have thus outlined? Surely, this part of the college training would never run to waste. The Latin and Greek might be unused and soon forgotten; but the hearts and minds of the next generation would be inexpressibly benefited by the gracious fruits of studies and exercises like those indicated.

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III

HABITUAL POSTURES OF SCHOOL CHILDREN

"How use doth breed a habit in a man."
—SHAKSPERE, *Two Gentlemen of Verona*, v. 4.

Habit is the repetition in a more or less involuntary manner of an act originally performed with some degree of volition. Among the forces which dominate human beings, there is none more potent than habit. Education, in essence, is intellectual growth through repetition. The child voluntarily repeats his task, until he is able to recall it with slight volitional effort. With what clumsy fingers the pianist strikes the keys until, by a multitude of repetitions in which brain cells and muscles have co-ordinated, he acquires the facility wherewith to charm his listeners!

The influence of habit upon the development of moral character is well understood by parents and educators. The repetition of physical postures and movements has the power, in a similar way, to modify and recast the shape of the body.

Physical beauty depends largely upon the element of physical symmetry. It is worth while, therefore, to study postures which tend to maintain bodily symmetry, if only for the purpose of enhancing personal attractiveness. Add the further fact, that physical health depends largely upon the maintenance of bodily symmetry, and the subject becomes one of practical importance, not only to parents and teachers, but to all men.

In the following pages I shall present the results of a careful study of the influence of habitual postures upon the shape and health of the body, leaving for the present the other and equally important element of symmetry, namely, the influence of habitual movements. In order to present the subject in a practical manner, it will be necessary to study the mechanics, so to speak, of the various postures which the body naturally

takes, standing, sitting, and lying. By this means we shall be able to decide which postures it is safe to permit to become habitual, and which ones tend to loss of symmetry.

In standing, the lower extremities are placed beneath the trunk in one of three ways. All others in which equilibrium is attained are modifications of these.

First. With both extremities placed evenly beneath the trunk. (Fig. 1.)

Second. With one leg supporting the trunk, and the other thrown forward, as in walking. (Fig. 2.)

Third. With one leg supporting the trunk, and the other thrown to the side. (Fig. 3.)

In the first position, the trunk is evenly poised upon its supports, with all its parts symmetrically placed. This would be a proper one to assume habitually, were it not that it keeps both extremities in muscular activity at the same time, whereas they demand the privilege of working alternately. Involuntarily one support drops out from under the weight, and the position changes to the third, which, as will be shown later, is an objectionable one.

The second position, namely, with one leg in advance of the other, as in walking, permits the body to rest upon one extremity, with very slight reduction of the normal spinal curves. The bones of the skeleton are all so placed in this posture as to retain the muscles in normal symmetrical relations as regards the distance between their origin and attachment, the direction of their fibers, etc. The backward movement of the head and shoulders to balance the weight of the forward leg, calls into action the muscles of the back and shoulders, while those upon the front of the body are placed in an equal degree of extension. The influence of this is to place the chest in a position favorable to respiration; hence this posture is conducive to chest expansion. The head cannot drop to either side without disturbing the equilibrium of the body, and the soft tissues of the face retain their symmetry. The ease with which the weight of the trunk can be transferred from one extremity to the other, makes this a

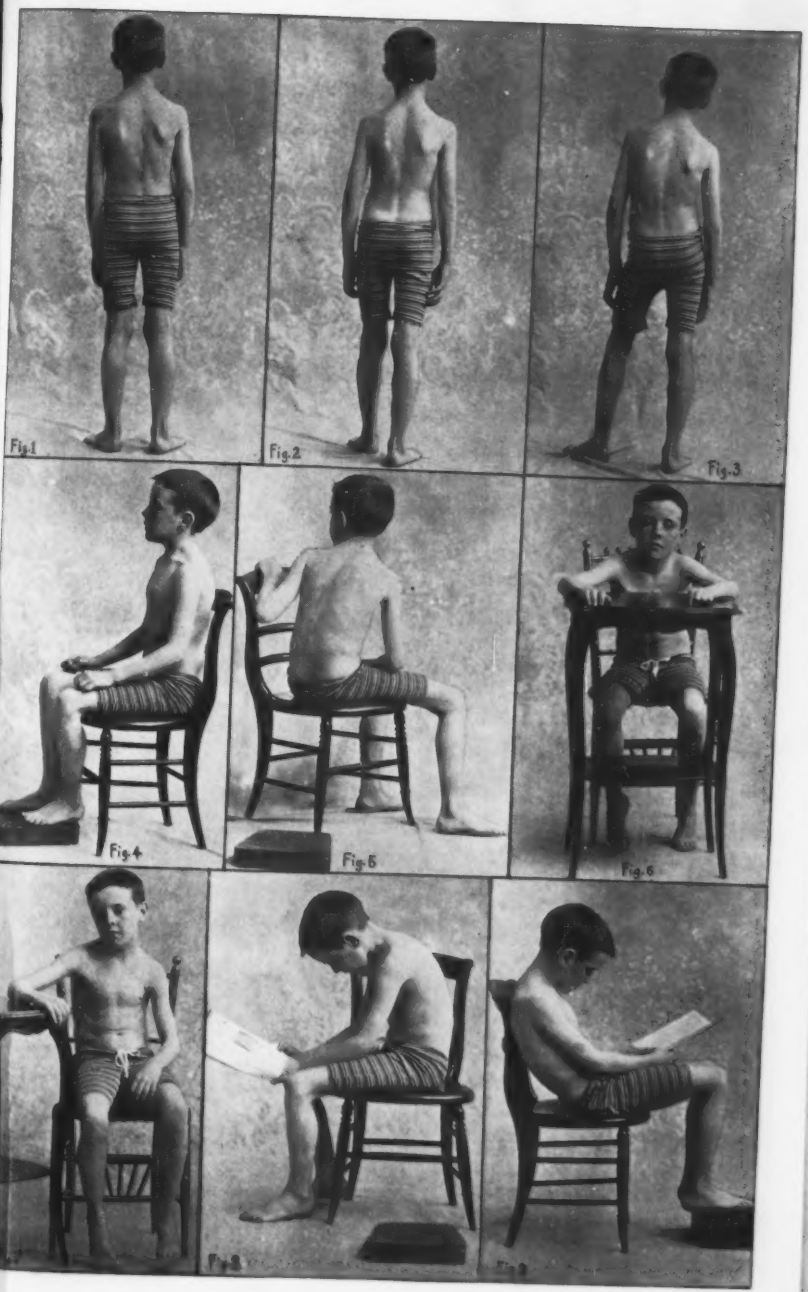
Fig.1
Fig.2
Fig.3
Fig.4
Fig.5
Fig.6

position which can be retained a long time without undue fatigue, and which renders it favorable to the making of gestures and the use of the voice; hence it naturally becomes the favorite posture of the orator and the public singer. Because of the narrow base which it gives to the body, however, and the corresponding sense of insecurity which the individual unaccustomed to it feels, this is not a posture naturally chosen; but with a stable foundation beneath the feet, it is one easy to assume, and children should be taught to fall into it habitually.

The third posture in standing is the one most commonly chosen, doubtless because of the broader base which it gives for the support of the trunk when needed. The change, also, from the walking posture to this, is so radical that it gives a sense of rest most grateful to the tired tissues.

The best way to make a critical study of this position with relation to its healthful tendencies or otherwise, is to examine an individual whose occupation has, for several years, necessitated the standing posture, and who has acquired the habit of dropping upon one and the same leg.

Understanding symmetry to mean "exact accordance of the two halves of one body," we place the person to be studied evenly upon both feet, and compare the two sides. We find in most cases the following variations, more or less well marked according to the general health of the individual, and the length of time the posture has been habitual: (In robust persons the muscles and soft tissues are not molded by posture as readily as in the poorly nourished and overworked.)

If the left extremity has been the favorite one (as it often is), the left thigh will measure in circumference a little more than its fellow. The left hip will be found higher than the right, and the spinal column slightly curved laterally, presenting its concavity toward the supported side.

In all cases there is marked projection of the angles of the ribs upon the unsupported side, indicating more or less turning of the bodies of the spinal vertebræ in that direction.

The ribs upon the left side approach each other and the top of the hip, shortening in a very marked manner the body line upon that side; the spaces between the ribs on the right side are proportionately widened, and the lengthened body line lacks the curve presented by the opposite side. The left shoulder is lower than the right; the left hand accordingly reaches a lower point upon the thigh than does its fellow. The head drops toward the left shoulder (to aid the shoulder and arm in balancing the weight of the unused leg), while the chin points in the opposite direction. There is marked loss of symmetry between the two sides of the face, produced by the influence of gravitation and unequal muscular activity. Unmodified by defects of sight or hearing, or by a variation in the length of the extremities, the lines of the face always manifest the following deviations from the normal, in all cases where this position has become a habit: The angle of the jaw becomes the lowest portion of the face, hence the soft tissues of the cheeks gravitate in that direction, producing a rounded contour on the lower side, in contrast with the flattened outline of the opposite cheek. The angle of the mouth usually drops a little; sometimes, however, it becomes elevated instead. The median line of the nose frequently inclines to the left as it approaches the tip, and the nostril is drawn upward, shortening the distance between the angle of the nose and the eye, as compared with the corresponding line on the opposite side. The left nostril is also dilated more than on the right, upon which side the cavity of the nose is somewhat obstructed.

The cheek fold becomes more or less erased on the left (by gravitation of the tissues outward), while on the right the same force deepens and elongates it. The left lower lid is pulled slightly downward, increasing the breadth of the opening at the outer angle of the eye. The same tractile force applied to the right eye upon the nasal side, lengthens, or seems to lengthen, the opening, at the same time widening the space at the inner angle. Hence the left eye becomes oval, and the right eye linear in all marked cases. Lack of

symmetry in the two halves of the face has long been observed by artists and photographers, but the casual observer seldom takes note of it, until his attention is called specially to the subject. The changes in the face which I have here pointed out, are all produced by carrying the head habitually on one and the same side, whatever the cause. Most often, however, it occurs as a result of standing and sitting with the trunk tilted to one side. When asymmetry is produced by defective vision, the face lines differ from those described according to the angle at which the best refraction is obtained.

The neck muscles tell the story of habitual posture more loudly, if possible, than do the lines of the face. Those which are attached to the base of the skull participate most markedly in the changes observed elsewhere.

The external muscles of the skeleton are not the only ones involved in this process of change. Those which move the eyeball are, to say the least, placed at a disadvantage in sidewise postures of the head, certain of them being forced to do more than their share in the work of rotation of the ball. No observations have as yet been made which demonstrate special abnormal conditions thus produced; but it is not unreasonable to include this posture among the causes of eye fatigue.

There is often a demonstrable decrease in the size of the chest on the side of the elevated shoulder, due, doubtless, to the changed position of the ribs and shoulder blade, to which are attached important respiratory muscles.

Shortening of the abdominal wall on the supported side, by approximation of the ribs and hip, displaces the intestines downward, and in the direction of greater space. This is specially injurious to growing girls, because of the unequal pressure thereby placed upon the movable organs within the pelvis. Habitually crowded toward the side of support, they acquire this position permanently, the result of which is an impeded circulation, and a positive tendency to pelvic disease later in life. With this array of facts before us, we recognize in this common posture, namely, with one leg supporting the

trunk and the other thrown out to the side, one which we cannot too strongly deprecate.

In sitting, the body naturally assumes a variety of attitudes, which, for purposes of study, may be classified as follows:

1. With pelvis resting equally upon the chair (or other support), spinal column erect, holding the head poised upon its summit. Arms balanced on the line of the hips. (Fig. 4.)

2. The same position, with shoulders placed diagonally to the transverse diameter of the hips. (Fig. 5.)

3. Body erect with both arms supported. (Fig. 6.)

4. With one arm supported. (Fig. 7.)

5. Arms and head in front of trunk. (Fig. 8.)

6. With pelvis resting on the front of the chair, and shoulders braced against its back. (Fig 9.)

The first of these, like the first and second postures in standing, places the trunk in a symmetrical position. It is one in which gravitation largely replaces muscular activity, therefore it is economic of force. With support applied to the lower part of the back, and below the shoulder blades, it can be maintained a long time without general fatigue. It is, therefore, the position which should be acquired in early life as the habitual one in sitting.

The second posture, namely, with spinal column in rotation, is an exceedingly dangerous one if permitted to become habitual, because it places the bony segments of the spinal column in a position calculated to produce elongation of some of their connecting ligaments, with shortening of others. The muscles of the back are also used unequally, the whole tending toward production of that dreaded condition, lateral curvature of the spine. Too much care cannot be given to the prevention and correction of the habit of sitting or standing with the shoulders out of line with the hips.

The third position, namely, with both arms supported, while it is not especially detrimental to health, in time destroys beauty of figure. The trunk is, in shape, an inverted pyramid, poised upon a pedestal—the pelvis. The arms, attached to its base, act as weights, which, by their adjustments, have

power to bend and mold the pliable, pyramidal trunk almost at will. Suspended upon the side line, they balance each other. Supported, nay, pushed upward by resting upon chair-arms, or desk, they elevate the shoulder blades, with which, by virtue of their intimate union, they are practically continuous. The resultant shape betrays the habit.

The fourth posture in my classification tends to shorten the body line upon the weighted side, with the far reaching results described in connection with the third position in standing. Combine with it more or less rotation of the spine, and this attitude becomes one of serious menace, especially to growing girls.

The fifth position, or that in which the arms and head drop in front of the trunk, is also productive of evil results, if often assumed. In this position the muscles of the chest, after drawing the arms forward, remain in the position of contraction, one which is unfavorable to free inspiration. The shoulder blades are widely separated, with their posterior borders everted. The weight of the head drops upon the muscles which connect it with the spine. These, with other back muscles, become elongated and weakened by this gradual stretching process. The upper antero-posterior curve in the spinal column, under the influence of this posture, deepens, and the obliquity of the ribs increases, diminishing the capacity of the chest, and with it the vital force of the body. Furthermore, this posture tends to fold the body together upon its anterior aspect. The result of this is to crowd the contents of the abdomen backward and downward, with the secondary effect of displacing and deforming the movable and easily molded organs of the pelvis. It is easy to demonstrate, therefore, that the indulgence in this habit of posture in early life, not only produces narrow chests, round shoulders, and drooping head, but much of the ill health to which girls so often become the victims.[1]

With the pelvis slipped forward upon the chair, and shoul-

[1] It is not wise to direct children to "throw their shoulders back," as in attempting to do this they assume a position which they cannot retain involuntarily. They should, instead, be directed to raise the chest, and place the shoulders and elbows upon the line of the hips.

ders braced, as in the sixth position, the weight of the trunk falls mainly upon the sacrum and coccyx. These bones are not sufficiently cushioned by flesh to protect the nerves which lie upon their surface, hence the latter are liable to become injured by the pressure thus applied. In this position, too, the normal curves of the spinal column are replaced by one long one, with its convexity presenting posteriorly. Important muscles and ligaments are thus placed unduly upon the stretch, making permanent curvature of the spine in this direction easy of occurrence in individuals of weak and lax tissues.

The sitting posture, at best, is not a safe one for children and delicate individuals to occupy continuously. The influence of gravitation, however applied to the spinal column, is one which it difficult for so movable a structure to resist; so that the tendency to the production of abnormal curves is always great, and increasingly so the longer the posture obtains.

No one position in bed should be allowed to become habitual. The only one in which all the parts of the body are placed symmetrically (namely, upon the back with a low pillow beneath the head), unfortunately is not conducive to the free circulation of the blood. Side positions interfere more or less with respiratory movements, and the prone position does not allow free access of air to the nostrils; hence the importance of frequent change without indulgence in a favorite posture.

The restless activity peculiar to infancy and childhood is the guardian of physical symmetry during this period. In sleep, as well as during waking hours, the muscles keep busy turning and twisting the little structure in a way our gymnasium teachers might well emulate. Occasionally, a specially "good baby" suffers in shape, because he does not demand for himself the right to kick and cry. Through some physical defect on the part of mother or nurse, infants are sometimes held habitually upon one and the same side. Pressure thus applied unequally to the easily molded bones, is liable to produce one-sidedness of the skull and chest, and sometimes of the pelvis also, which mars the individual through life.

With school work begins confinement within doors, and to the sitting posture, with a subduing of the restless activity so long the child's safeguard. Rarely is the seat assigned the little victim so constructed as to be helpful in maintaining the body in equilibrium. A desk is placed before him, which eloquently offers support, eagerly accepted by one or both elbows, placing his body almost continuously in the third or fourth position of our classification. Should the teacher's desk and the blackboard be at his right or left, as is often the case, instead of in front of him, he is obliged, in order to give her his attention, to twist his body into the second, and most dangerous, of the sitting postures described. The old custom of requiring children to sit sidewise at the desk to write, held the body with the spine placed strongly in rotation.

Relief from the monotony of sitting comes with the call to recitation. Here, perchance, the pupil stands, although, if the opportunity presents to lean against the wall or seat, he quickly utilizes it; otherwise he is sure to swing the body over upon one leg, into the third position of our series. In spite of his teacher's oft repeated command, "stand up," he drops again and again into this posture, until it becomes habitual, with its far reaching evil consequences.

The hands are troublesome members at times, and the disposal of them becomes a vexed question to teachers. The study of our fifth position in sitting, shows that no more serious mistake *can* be made in the schoolroom than to require children to fold the arms across the chest. Folding the arms behind the back, as a change from forward positions, is sometimes restful, but, if long continued, tends to deepen the normal curves of the back.

It is a common practice for children to carry a pile of books upon the arm, to and from school. This is harmful in its tendency, for several reasons: It confines one arm, preventing its easy swing in walking, an important element in equalizing the circulation of the blood. It unbalances the body, making necessary a shifting of the parts to restore equilibrium, thus

placing the trunk in an unsymmetrical position. Most individuals, adults as well as children, acquire the habit of using one arm more than the other, in carrying books, bags, etc. That the habitual weighting of the same side tends to produce deformity, is shown in the figure of the man who has carried a pack on one shoulder continuously.

Nearly all occupations in life present temptations to the body to acquire a habit of posture which, in time, modifies the shape of the individual. The teacher herself, while using her best efforts to train her pupils to right habits of posture, is likely to become unsymmetrical. A careful physical examination made by me of over two hundred teachers (women), revealed the fact that a majority of them had the mark of their occupation stamped upon them, either in the twist of body, which results from standing on one and the same leg, with the other thrown to the side, or the high shoulders and projecting head, caused by sitting habitually in a chair with arms.[3]

The woman who sews by hand acquires a low right shoulder, with head dropped toward the opposite side; while the one who spends many hours each day working on the sewing machine becomes high shouldered and short-necked. The man who stands at his desk all day acquires the same shape, so does the sailor who climbs the mast. The man of letters does not sit over his desk many years without elongating the muscles which attach the head to the spine, thus acquiring the forward poise of the head so often seen in the pulpit and upon the lecture platform. Drug and dry goods clerks, if right-handed, work with the body resting on the right foot. The resultant shape we are all familiar with, if observant. The horse-car driver, the truckman, and even the hod-carrier, all receive in time their trademark.

Since the evil results of habits of posture are so far reaching and so subtle in their influence upon the human body, it becomes the duty, not alone of educators, but of business

[3] Nearly all these women wore corsets habitually; hence, the statement that this garment prevents asymmetry is fallacious.

men who employ large numbers of people, and of architects who plan large public buildings, to make the surroundings of those for whom they are responsible as hygienic as possible.

Chairs[3] and other seats should be provided which help the body to maintain itself in symmetrical postures. They should be so placed as to make it unnecessary to turn the head and shoulders in the act of giving attention. Sufficient space should be allowed for the extension of the lower extremities. Desks upon which the elbows can rest should not be placed before school children.[4]

Workshops should be so planned that operatives can change their work from side to side, or vary it, to prevent them from becoming unsymmetrical.

Furthermore, corrective exercises of three minutes' duration should be given, at stated intervals during the day, in all our schools and workshops, with the definite object in view of preventing loss of symmetry and deterioration of health.

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[3] Dr. William Schulthess (*Zeitschrift für Orthop. Chirurgie*, Bd. 1. Hft. 1) describes a seat which he has planned, with special reference to the prevention of spinal curvatures in children. His plan seems to me to embody the fundamental principles involved in the construction of a suitable schoolroom seat.

[4] It goes without saying, that the schoolroom desk cannot be dispensed with. It, however, should be so constructed as to be a help and not a hindrance to the symmetrical growth of the pupil. To be of assistance, it should consist of two parts; a writing table and a reading desk. The former should be low, having a flat top, and ample space beneath for the knees. Moreover, it should be only long enough to accommodate the copy book.

The reading desk (which might consist of a section of the table), should be adjustable, swinging upward and forward to place the type to be read at the right focal distance for each individual pair of eyes, thus preventing the necessity of dropping the head and shoulders forward in study.

Such a school desk would leave the arms free, maintain the body erect, and prevent eye-strain.

IV

EDUCATIONAL METHODS AT WEST POINT

The United States Military Academy at West Point is annually inspected by a board of visitors, consisting of two senators, three representatives in the United States Congress, and seven other members appointed by the President. During the first two weeks of June of each year, this board makes the most thorough investigation of the course and methods of instruction, the government, administration, and discipline of the institution, and, indeed, of every detail concerning the treatment, behavior, and conduct of the cadets. A full report of the results of this investigation is made to congress every year, and is, by it, published to the world, so that it may be said to be constantly open to public scrutiny. It is, of course, highly gratifying that these reports have been almost invariably very commendatory, and that the people have signified their assent to the continued existence of the institution and their appreciation of the results obtained, by a generous appropriation for its support from year to year.

At the request of the editors of the EDUCATIONAL REVIEW I shall endeavor to give a brief outline of the method of instruction which has now, for more than seventy years, so successfully accomplished its purpose. As a preliminary, however, it may be well to give a brief statement of the requirements for admission to the academy, and the conditions for graduation, in order that the nature of the problem which the academy has to solve may be understood.

1. *Requirements for admission.*—Every candidate is subjected to a rigid physical examination by a board of medical officers of the army, and if there is found to exist in him any cause of disqualification to such a degree as would immediately or at no very distant period impair his efficiency, he is rejected. Those who pass the physical examination are then

examined in reading, writing, orthography, arithmetic, English grammar, geography, and the history of the United States.

Prior to 1870, candidates were examined orally in these subjects, and it was then the custom to assign a sufficient number of cadets of the upper classes to give instruction to the candidates for a period of about three weeks before their examination. Since that time, however, the examination has been mainly written, and so conducted as to conceal the identity of every candidate from the members of the Academic Board, in order that its judgment should be reached only by the written results of the examination papers. Candidates that receive at least sixty-seven per cent. in each of the subjects mentioned above, are considered qualified to proceed with the course of instruction and are admitted. Of course it is afterward demonstrated that many have been admitted who were not able to master the course, and they, year by year, fall by the way. It may be stated, as a rough approximation, that of one hundred candidates examined, sixty-six will pass the entrance examination and thirty-three will finally graduate. When the simple character of the requirements for admission, and the advanced age (from seventeen to twenty-two) of the candidates are considered, it must be admitted that this fact is not very creditable to the attainments of those who seek to be educated for the military profession.

2. *Requirements for graduation.*—Every cadet who, on graduation, receives the diploma of the military academy, has been obliged to show his proficiency according to the standard adopted, in the course of study and text-books, given in the following pages.

For term work, the standard usually followed for proficiency is about sixty-seven per cent. of the maximum that can possibly be obtained by the best students, and while in some cases this may not be attained on the advance, the general review and examination must exhibit such an improvement as to bring the total up to about that standard.

It will be apparent at a glance that the extent and char-

COURSE OF STUDY AND BOOKS USED AT THE MILITARY ACADEMY.

(Books marked thus * are for reference.)

FIRST YEAR.—FOURTH CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Mathematics.	Davies' Elements of Algebra. Davies' Legendre's Geometry. Ludlow's Elements of Trigonometry. Davies' Surveying. Church's Analytical Geometry.
Modern Languages.	Keetels' Analytical and Practical French Grammar. Keetels' Analytical French Reader. * Spiers' and Surenne's Dictionary. Whitney's Essentials of English Grammar. Hart's Manual of Rhetoric and Composition. Abbott and Seeley's English Lessons for English People. Abbott's How to Write Clearly. * Webster's Dictionary.
History, Geography, and Ethics.	Lectures in Ethics, and in Universal History.
Drill Regulations of Artillery and Infantry.	Practical Instruction in the Schools of the Soldier, Company, and Battalion. * Blunt's Firing Regulations for Small Arms. Practical Instruction in Artillery.
Use of the Sword, etc.	Instruction in Fencing and Bayonet Exercise, and Military Gymnastics.

SECOND YEAR.—THIRD CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Mathematics.	Church's Analytical Geometry. Church's Descriptive Geometry, with its application to Spherical Projections. Bass' Introduction to the Differential Calculus. Church's Calculus. Church's Shades, Shadows, and Perspective. Johnson's Treatise on the Method of Least Squares.
Modern Languages.	Keetels' Analytical and Practical French Grammar. Borel's Grammaire Française. Böcher's College Series of French Plays. Roemer's Cours de Lecture et de Traduction, Vols. I and II. * Spiers' and Surenne's Dictionary.
Drawing.	Topography and plotting of Surveys with lead pencil, pen and ink, and colors; construction of the various Problems in Descriptive Geometry, Shades and Shadows, and Linear Perspective and Isometric Projections; Practical Surveying in the field. * Reed's Topographical Drawing and Sketching, including Photography applied to Surveying.
Drill Regulations of Artillery, Infantry, and Cavalry.	Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Small Arms Target Practice. * Blunt's Firing Regulations for Small Arms. Practical Instruction in Artillery and Cavalry.

THIRD YEAR.—SECOND CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Natural and Experimental Philosophy.	Michie's Mechanics (4th Edition). Michie and Harlow's Practical Astronomy. Young's General Astronomy. Michie's Elements of Wave Motion relating to sound and light.
Chemistry, Mineralogy, and Geology.	Bloxam's Chemistry (7th Edition). Tillman's Elementary Lessons in Heat (Revised Edition). Tillman's Essential Principles of Chemistry. Tracy's Anatomy, Physiology, and Hygiene. Thompson's Elementary Lessons in Electricity and Magnetism. Dana's Manual of Mineralogy and Petrography (5th Edition). Le Conte's Elements of Geology.
Drawing.	Free Hand Drawing and Landscape in black and white. Constructive and Architectural Drawing in ink and colors. * Reed's Topographical Drawing and Sketching, including Photography applied to Surveying.
Drill Regulations of Artillery, Infantry, and Cavalry.	United States Army Artillery Drill Regulations. Tidball's Manual of Heavy Artillery Service, U. S. Army. United States Army Cavalry Drill Regulations. United States Army Infantry Drill Regulations. Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Artillery and Cavalry.
Practical Military Engineering.	Practical Instruction in the construction of Pontoon Bridges; in laying Gun Platforms; and in the preparation and application of Siege Materials. Practical and Theoretical Instruction in Military Signaling.

FOURTH YEAR.—FIRST CLASS.

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Civil and Military Engineering and Science of War.	Wheeler's Civil Engineering. Wheeler's Field Fortifications. Mercur's Mahan's Permanent Fortification, Edition of 1887. Wheeler's Military Engineering (Siege Operations, and Military Mining). Mercur's Elements of the Art of War. Mahan's Stereotomy. * Royal Engineer's Aide-Mémoire, Parts I and II. Mercur's Military Mining.
Modern Languages.	Knapp's Spanish Grammar, Knapp's Spanish Readings. * Seoane's Neuman and Baretti's Dictionary.
Law.	Davis's International Law. Cooley's General Principles of Constitutional Law in the United States. Winthrop's Abridgment of Military Law. General Orders No. 100, A. G. O., 1863.
History, Geography, and Ethics.	Swinton's Outlines of the World's History. * Labberton's New Historical Atlas and General History.

FOURTH YEAR.—FIRST CLASS.—*Continued.*

DEPARTMENT.	COURSE OF STUDY, TEXT-BOOKS, AND BOOKS OF REFERENCE.
Practical Military Engineering.	Practical Instruction in the construction of Pontoon, Trestle, and Spar Bridges; in the preparation and application of Siege Material; and in laying out field and siege works. Practical Instruction in Military Mining. Practical Instruction in Military Reconnaissances; in Field Telegraphy, Night Signaling, and the use of the Heliograph. *Ernst's Manual of Practical Military Engineering.
Natural and Experimental Philosophy.	Practical Instruction in Astronomy.
Drill Regulations of Artillery, Infantry, and Cavalry.	Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Artillery and Cavalry.
Ordnance and Gunnery.	Metcalfe's Ordnance and Gunnery. Ingall's System of Exterior Ballistics.

acter of the work required for graduation, when compared with the very limited requirements for admission, are excessive, and this work can only be accomplished in a satisfactory manner by the average student through the strict discipline of a recognized authority. In addition to its purely academic work, the military profession demands that the academy should develop the manly virtues of its pupils and eradicate or suppress their vices; so that he that is deemed worthy to receive the diploma, is recommended to the President of the United States as fit to bear a commission in the army, not only because of his intellectual attainments, but because he has given the best of evidence to the Academic Board that he promises to become, through all trial and temptation, a man of strict integrity, of self-reliance, a faithful, loyal, and subordinate servant of his country.

Bearing these requisites in mind, it is readily seen that unquestioned obedience is the first thing to be instilled in the young cadet's mind, and this not only on the drill ground, but in the barracks, the recitation room, and even in the many relations that exist among comrades wherein, while at one moment they may be boon companions, at the next, one becomes the military superior of the other. Briefly, the system is compounded of subordination and command, extend-

ing all through the four years of cadet life, wherein the principle of responsibility, first in lesser things and so continually progressive to greater, is employed to inculcate the sense of personal duty.

For instruction in studies, the new class is at first divided according to alphabetical order into sections of twelve men each, or less, and the first two months are principally devoted to breaking them into the West Point method of recitation, of teaching them the necessity of exactness of thought and expression, and of rearranging them according to ability or apparent proficiency. During the first half year, but two studies are assigned to the new class, for which two and a half hours are required in the section room for recitation; and five hours are necessary for their preparation. At the designated hour for recitation, each section, under the command of its section marcher, is formed in the area of barracks, the roll is called, the present and absent reported to the cadet officer of the day, and then it is marched to its recitation room, where, after reporting to the army officer instructor, the responsibility of the cadet section marcher temporarily ceases. I well recall the imposing appearance of the instructor to whom I made my first recitation in algebra in 1859. I had studied this subject several years before coming to the academy, and thought that I was very familiar with the lesson of the day, but I soon found that my explanation of the particular part assigned to me was not equal to the exacting demands of this formidable son of Mars. I was required to stand in the stiff attitude of a soldier, use my pointer only when necessary to point out some symbol on the blackboard, and immediately return it to the prescribed position at my right side. As a consequence my recitation was not as satisfactory to myself as my knowledge of the subject warranted, and I was somewhat irritated and rebellious. But day by day these exactions on the part of the instructor became less formidable; we corrected our habits, modified greatly our imperfections, and soon were able to make a clear and intelligent demonstration. As an example of military exaction, it is related that on one

occasion a young cadet who had carefully studied out his subject at the blackboard, and felt that he was going to make a brilliant recitation, was called on, in his turn, to recite. He began, "I am requested to demonstrate the binomial theorem." "No, sir," thundered the instructor. "You are *required* to do so, sir. Go on."

At any time during the recitation the instructor may ask any question, or cross-examine the student upon any part of the subject matter, but it is generally the terrible "Why?" Woe betide the unfortunate who has learned by heart the words of the text and has failed to examine into the reasons of each point of the demonstration. There was once at the academy the son of a distinguished officer of the army, who was always quite willing to accept whatever the book said without question. On one occasion, after completing his demonstration, the instructor propounded the inevitable question, "Why is that so, Mr. Blank?" "The book says so, sir," he replied in the rich brogue of his native tongue. "That is not a reason," responded the instructor. "Well, sir," said Mr. Blank, "this is the first place I'VE ever been where a man is required to doubt the ăather."

This well illustrates the character of the instruction given during the whole academic term. It is essential that the only authority in mathematical studies shall be the rational deductions derived from the fundamental axioms and definitions which are established in the earlier lessons of the course. No formula, nor assumption, nor demonstration is ever given by authority of the author.

During the progress of the course, frequent transfers from one section to another are made by the Superintendent of the Academy on the recommendation of the head of the department of instruction. Before the semi-annual examination, a list of the class in each subject is prepared, showing the relative standing according to the judgment of the professor, together with a record of marks actually made on advance, review, and general review. At the semi-annual examination the Academic Board is divided into two committees, to each

which is assigned half the subjects that are taught in the previous session. The members of each committee are required to pay close attention to every cadet's examination, to mark carefully the degree of his proficiency, and afterward, when in private session, to compare, discuss, and determine his relative standing in that subject, giving due weight to the record submitted by the professor. This supervision of the work and methods of each professor by his colleagues is considered to be of the greatest value to the Academy, and while it does not limit the responsibility of the professors in the conduct of their special duties, it does often modify individual judgment, and gives greater weight to the final result.

The course of studies and the character of the text-books used at the Military Academy require that all the time allotted by the regulations for study should be faithfully employed for that purpose. If a cadet be not in good physical condition, he must lose class standing and possibly his warrant; for there is no stopping by the way. Every day has its assigned task. Like an army on the march, making fifteen miles a day, the stragglers at the rear of the column, losing a day, must either make their thirty miles the next day or be captured by the enemy. Many cadets fail, either because they are constitutional stragglers, or become so at critical periods of their career. Some are not necessarily less able intellectually than others who succeed, but the latter win success by dogged perseverance and sturdy pluck.

Owing to this steady pace, the apportionment of time and lessons must be arranged with great care, so that the cadet may not be overtasked. Taking for example the work of a member of the second class, just entering on the third years' course, we find the following allotment of time: *Reveille* and room inspection, 5.30 to 6 A. M; breakfast, 6.30 to 7; study to 8; either recitation or study from 8.30 to 9.30 or from 9.30 to 11 A. M.; recitation or study from 11 to 2 or from 12 to 1 P. M.; dinner, 1 to 1.30; recreation, 1.30 to 2; drawing from 2 to 4 three times a week alternating with study; drill from 4.15 to 5.15; parade and supper from sunset to 7; recreation till 7.30;

study till 9.30; taps 10 P. M.; sleep till *reveille*. In case the cadet be assigned for guard, he loses about an hour and a half from his study time, but this he must anticipate about once in six days.

Doubtless those that are engaged in instructing young men, and especially those who are in love with their work, often think of the methods in vogue, and seek to learn whether modifications might not with propriety and advantage be made. There are so many conflicting elements to be considered, especially in this comparatively new country, where we are all in a hurry to push our sons into business or into some profession, and necessarily sacrifice the most important years of preparation to the exacting demands of immediate but temporary success. Each successive preparatory stage is shortened that the next may be the sooner reached. Our self-love is aroused whenever our sons are apparently less advanced than are our neighbor's, and we eagerly seize upon any project that promises to transpose the conditions. Much has been written on this subject of late, and though there are many questions as yet unsettled, it can scarcely be doubted that our educational institutions have made striking advances in the scope and methods of their training. No one can to-day visit the great centers of learning without being impressed with the tremendous earnestness which actuates so many of our young men, especially in the many new branches of scientific education that have, of recent years, been introduced in the colleges and universities.

On the occasion of a recent visit to some of the more prominent, I was particularly struck with the active interest of great numbers of these young fellows and exceedingly impressed with the character of the work they were doing. But there arose in my mind the query whether in some cases, if not in all, the very grave objection I have alluded to did not exist. I mean that while striving after excellence in practical manipulation during the period of instruction, something more valuable in the way of thorough theoretical preparation had not been sacrificed. Of this I could not be sure, because I

had not then the time nor opportunity to make such an examination as would enable me to form a just and proper judgment. It forced itself upon my mind, however, because I knew that it required a great many hours of severe study under the strictest conditions for the employment of time, to prepare our young men at West Point in the fundamental principles upon which all scientific education must be based.

To bring more particularly into view the steps by which a course of instruction at the Academy is devised, I will describe briefly the course of natural philosophy, with which I am somewhat familiar, and which will serve as a type of others. It is taught during the third year of the course, where the allotment of time is that already given in detail. The subjects taught in this department are the analytical mechanics of solids and fluids, wave motion and its application to sound and light, and general and practical astronomy. At the same time the cadets have a course under the department of chemistry in chemical physics, heat, electrics, physiology, mineralogy, and geology; a course in drawing, and a course in minor tactics and drill regulations.

Every consideration of the professional career of an officer shows that he is not intended to be a specialist in any of the above sciences, and indeed should he become one it would limit his usefulness in the military profession. But he may often be required to form an independent judgment on questions connected with them all. He should therefore be well grounded in the fundamental principles which underlie all science in order that he may have an unfailing standard of judgment.

Having this in view, we utilize the student's mathematical knowledge gained in the preceding years to establish the laws of mechanics by the concise methods of analysis. Now the true basis of mechanics is found in the modern doctrine of the "conservation of matter and energy," and this rests primarily on the axiom that the whole is equal to the sum of all its parts. Since both matter and energy are quantities capable of being measured in definite units, the doctrine of their con-

servation amounts to nothing more than is axiomatically expressed by the statement, "That whatever energy resides in a body at any instant is exactly equal to that in the body at any previous instant plus that which has been added and minus that which has been taken away in the interval." This statement put into mathematical language forms the single fundamental equation from which, of necessity, all laws of mechanics must be deduced. The law is simple, but the extent of our theoretical investigations is exceedingly limited, since our mathematical attainments, upon which it depends, are so also.

We have now an established law from which there can be no appeal. Every deduction flowing from it must be equally conclusive, provided the processes be correct. With confidence in the premises, skill in the mathematical applications, and integrity in the work performed, the student needs only the wisdom of experience to guide him by the most direct road to the next stopping place—for the duration of the educational journey is indeed limited. In making the application of the law to a free rigid solid, we deduce all the circumstances of its motion of translation and of rotation, and show that these are entirely independent of each other and can be separately investigated; and a similar treatment of a body under constraint naturally follows. We then pass to the mutual attraction of two bodies, from which the laws of central forces and planetary motions are deduced, thus leading up to physical astronomy. So in hydrodynamics the same general law finds its application in the flow of liquids and gases, and in the vibratory motions of molecules, from the latter of which follows the mathematical theory of sound and light. And thus the course is formulated, connected, and arranged.

In the simply furnished, almost bare, barrack room, the cadet learns his lesson during the time set apart by the regulations for study. When he appears for recitation, it is understood that he is prepared on the whole of the assigned lesson of the day, but before the recitation properly begins he may

seek from his instructor such assistance in the way of explanation as he may need. Then follows a searching inquisition by the instructor into his proficiency. The mental discipline derived in the six or more hours of daily study and the section room work is the reward which the cadet carries away with him in return for his four years of continuous labor.

The record of marks on a scale of three as a maximum, is posted every week, and accessible for the inspection of the cadets, so that everyone can compare his standing and progress in every subject with those of his comrades. This stimulates his activity, either in striving to advance a section or to prevent his transfer down. As the sections are arranged in order of merit, it is the duty of the head of each department of instruction to make frequent visits to the different sections of his class, and by personal investigation, ascertain whether the order of merit, as shown by the record of marks of the instructor, is correct or should be modified, and to determine when transfers should be made between sections. These transfers, largely based on the record of marks, are decided upon impartially, and after due consideration and consultation with the instructors in charge of the sections interested. Another function of both officer and professor, of great value in the educational process, is to develop self-reliance in those that are naturally shy, by judicious encouragement, and by the proper exercise of that abundant authority vested in them, to hold in check those that are over-confident and unduly self-asserting. In the close personal and intimate relations that necessarily exist between the officer instructor and the cadet, every characteristic of the latter is brought into prominence at some time or other. The generous traits, the selfish qualities, the grasping ambition, or the modest diffidence can be censured or encouraged in turn, and by these means the cadet may be educated on lines much more valuable for the honor and character of the military profession than by the purely intellectual attainments acquired in the particular study under consideration. For this reason alone

it would be a grave mistake to discard the recitation system at the Military Academy.

Taking, then, a general view of the system as a whole, it may be said that, by a wise administration of discipline, there is inculcated a subordination that is devoid of servility; by a distribution of responsibility, simple but honorable official duties are provided which, when rightly performed, enhance each one's self-respect, and improve his capacity for command; and by directing that there shall be constant employment of time, from *reveille* till taps, idleness with all its attendant evils may be largely eliminated. Military exercises pertaining to the several arms of the service are judiciously interspersed during the academic session, to relieve the mind from intellectual fatigue and at the same time to provide for the practical instruction in the duties of the soldier. Finally, it will be seen that while the course of studies is mainly academic, that it is of a high grade, being largely devoted to a very thorough preparation in those principles which underlie a broad and general scientific education, and at the same time judiciously assimilated with those studies that are essential for the preliminary education of an accomplished officer in the military profession.

The United States Military Academy was established by enactment March 16, 1802, and began its existence with ten cadets on the Fourth of July, the same year. Since the close of the graduating exercises of this year, there are borne on its rolls the names of its thirty-five hundred and eleven graduates. No other institution of learning has what the Academy possesses, a full and complete biographical record of every one of its graduates. Prepared with the utmost fidelity to truth, and published to the world by the late General George W. Cullum, it is indeed a grand monument to the institution; a justification of the wisdom of its establishment, the efficiency of its organization, and the soundness of its methods of instruction. The process by which the Academy grew from an obscure foundling to become an institution worthy the pride and affection of a great people, is admirably told by General Cullum i

an appendix to the third volume of his *Biographical Register*. The following brief quotations will show that the present system is the creation of a graduate of the Academy, General Sylvanus Thayer, a man singularly endowed for the work he had to do:

"It was truly fortunate for the Military Academy that its first superintendent was such a man as Major Jonathan Williams, with the experience of fifty-two years of an eventful life; with the patriot instincts of his Revolutionary sire, and grand-uncle, Benjamin Franklin; with a mind liberally educated, and stored with much scientific and general information; with the pen of a ready writer which had done good service in the struggle for our independence; with a judgment matured by a mercantile intercourse, and a broad and high social position at home; with great decision of character, and untiring zeal in the public service; and, withal, a most kind and polished gentleman, and a brave and chivalric soldier. To such pledges for success in his important command, he added industry, exactness, patience, and benevolence; hence, under his eminent example, the academy quickly received tone and character, steadily advanced in discipline and usefulness, and brought forth golden fruit in its distinguished graduates, who did brilliant service in our War of 1812–15 with Great Britain, which began in gloom and disaster, and closed in a blaze of victory. . .

"Unfortunately for the Military Academy, Dr. William Eustis, who had been a hospital surgeon in the Continental Army, was appointed, March 7, 1809, a member of President Madison's Cabinet. He began his administration of the War Department by an effort to disperse the few cadets at the institution, degrade them to common laborers, and deprive them of all educational advantages. By midsummer of 1810, he, by his failure to make new appointments, and by his constant detail of cadets for clerks and for subordinate company duties, had left so few at West Point that the Military Academy, except in name, had virtually ceased to exist, and discipline was so palsied by his constant intermeddling that only

by the most summary measures could Williams preserve even its semblance. . .

"Major Thayer, upon graduating at West Point, had left his Alma Mater under the wise and efficient supervision of Colonel Williams, and upon his return, after the lapse of only nine years, he found the Military Academy in a chaotic condition, without system or regularity in its administration, or harmony among its professors, most of whom were absent or in arrest. The number of cadets belonging to the institution was much below the legal allowance, and these had been admitted at all ages from twelve to thirty-four; some were maimed and others married, and many were totally disqualified for the profession of arms. Preliminary mental and physical examinations had been dispensed with; no classification by merit existed; and graduation from the institution depended more upon vacancies in the army, age, and growth of cadets, and fancied fitness to become officers, than upon any rigid test of attainments. Some, despite the law of 1812, requiring that they should go 'through all the classes,' became full-fledged officers in four months, and others again not till they had been pupils for nearly six years.

"Major Thayer resumed the superintendency September 5, 1817, when the academy began that successful ascent which, in the succeeding sixteen years, culminated in such notable perfection of the institution.

"Almost by intuition, he discovered the virulent ulcers destroying the vital parts of the academy, and such as he could not cauterize into healing action, like a bold surgeon, he promptly extirpated. Examinations were at once held, the incompetent and vicious dismissed, and the indolent, who had lingered for many years without progress, quickly discovered that a like fate awaited a continuance of their derelictions. He promptly organized the cadets into a battalion of two companies, officered by members of their own body, with a colonel at its head and an adjutant and sergeant-major for his staff; appointed an officer of the army as 'Commandant of Cadets,' responsible for their tactical instruction and soldierly

discipline; transacted business with members of his command only at stated office hours; classified all cadets according to their proficiency in studies; divided classes into small sections for more thorough instruction by the teachers in charge; required weekly class reports showing the daily progress of students according to a scale of marks; directed more thorough recitations, and a freer use of the blackboard; greatly improved the curriculum of studies, according to a well digested programme; organized a proper Academic Board, with the superintendent at its head; introduced the check book system, to curtail the prevailing extravagance of cadets, then deeply in debt; reduced the expenses of educating pupils to less than one-half the cost at the Woolwich Military Academy in England; had the officer of the day daily to dine with him, enabling himself thereby to learn all that was transpiring in camp or barracks; required cadets to obtain a permit from him for almost everything, even to a letter from the post office, thus maintaining such constant intercourse as enabled him to call all by name, and understand their characters and habits; and made many other salutary provisions to secure thorough discipline, a high standard of honor, complete physical and mental development, and a generous rivalry for conspicuous soldiership and eminent class rank."

It may well indeed be said of General Thayer from the foregoing record that he was truly "the Father of the Military Academy."

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V

THE UNIVERSITY SPIRIT

If I were called upon to express my conception of a university, I should say that in the largest sense it is a place for the emancipation of thought. The thought of man fettered by ignorance or superstition, superstition which may coexist with a high degree of intelligence, is the great mission field of all educational institutions. It has often occurred to me that the mission of a university is more a crusade against superstition than against ignorance. Its work is to cultivate not so much the power of thinking as of logical thinking. It is very hard for us to realize how much the wings of our thought are tied down by hereditary or thoughtless beliefs. The world contains untold attics full of heirloom rubbish, and it needs an incendiary fire now and then to get rid of it. Second-hand opinions are by far the most common kind, and the whole effect of a university should be to make men think for themselves. The spirit of a university is therefore necessarily iconoclastic. There is an iconoclastic spirit which attacks existing beliefs simply because they are existing beliefs; and this is far enough removed from the spirit I would commend. The true iconoclastic spirit, which it is the mission of a university to foster, is not one that attacks, but undermines all existing beliefs inconsistent with truth. Its destructiveness is incidental, of necessity, not premeditated. Habits of investigation and resistless deduction are the things to be cultivated and insisted upon; and when these tempered weapons are turned upon any subject approachable by the intellect of man, they pierce straight through the mail of preconceived notions and reach the heart, the truth. From my point of view this was the secret of the tremendous power of the greatest teacher of the principles of right living who ever lived. His clear statements of ethical principles pierce like sunbeams

through the dust that men had raised about themselves. And so, I have said, the university is a place for the emancipation of thought, a place to encourage the spirit of true iconoclasm.

The truest idea that has found its way into modern university methods is the recognition of the individual. Sowing the same seed in all fields, of whatever diversity of soil or climate, surely commends itself no longer as a rational system of education. The old method of education fitted pupils like contract clothing fits an army—it was full of misfits. The problem is not one of an undifferentiated mass, but of highly differentiated individuals, and if training does not recognize this individualism, its adaptation is only a thing of chance. One kind of sound vibration may call forth a sonorous response from properly attuned strings; but the other strings remain silent and unresponsive. The duty of a university is to strike every note, that every string may respond; and this response is the evidence of awakened thought. I regret to say that there are still advocates of the patent medicine system who claim that the same dose is suited to every ailment; and their sole argument is to point to the illustrious cases that have been benefited. Where, it is said, can you discover grander results of training than in the intellectual giants of the last generation? Have we any such in these degenerate days? It must be remembered, however, that men only appear gigantic when their associates are small; and I look upon these ancient giants, not so much as an evidence of fine educational methods, as an evidence of terribly inappropriate methods which left them so many small men as associates. The seed that falls on good ground might argue well concerning the beneficent provisions of nature; but what of the myriads of seeds that fall by the wayside, or among thorns? The testimony of the one must be corrected by that of the other before any correct conclusion can be reached. To make every pupil think for himself is the sole mission of a university. In his St. Andrews address on Education, Froude aptly puts it "that the backbone of education must always

be the ability to do something, and not merely to answer questions."

From my point of view, when universities abandoned the old patchwork curriculum, and substituted for it elective courses of study, they changed from a false to a true theory of education. By means of it, even the intellectually poor student of to-day is doing more, is developing more utilizable brain power than the brilliant one of a few years ago; and we have no longer a race of giants and pygmies. Besides, it is not stating the whole result to say that even intellectually poor students can do much, but also students intellectually rich in certain directions have now a chance to cultivate their peculiar powers. The old system not only held down all the dullards, but also repressed many of the gifted. It simply roused to great intellectual activity those whose cast of mind was adapted to the only kind of training given.

This change to elective courses, which is sweeping rapidly through our American colleges, is one of those cases in which there was a revulsion in public sentiment long before it obtained a hearing among the colleges, encased as they were, and are, in mediæval precedent. It is curious that in this day and generation, when everything is making such marvelous progress and completely upsetting our old notions, that there should be still some to claim that the educational methods of one hundred years ago are still appropriate. To be consistent, such individuals should only ride in stage coaches and read by tallow dips. If the university of the twentieth century has not outgrown many of our methods of to-day, I should consider it a sorry record. The general public long since recognized that there was something out of touch between the old-fashioned college methods and the needs of the world. Of course, the public could not formulate the difficulty or suggest any better methods. Only by sneer or flippant joke could it express its dissatisfaction. What the public said about college methods was little to the point, and it would have been foolish to have followed such suggestions. But the feeling indicated by this tongue-tied expression did

mean that they were not getting from the colleges what they needed. It was a blind hunger that did not know how to satisfy itself, and could only grumble. Those who have recognized this demand for men and women with more utilizable brain power have suggested elective, individual work, and that is the answer we are giving to this demand.

I have spoken of the great desirability of cultivating a utilizable brain; and it is a question of some moment to consider the uses to which it may be put. I recognize in all American training a tendency to hold up, as the purpose of intellectual equipment, the ability to compete for high position. "Every American boy recognizes the fact that he may become President," has become a sort of national incentive, simply expressing the fact of competition in its most narrowed and excessive form. The beauty of knowledge for its own sake is too much lost sight of in our eternally utilitarian outlook. It has occurred to me that we are missing the mark here somewhat, and I have wished that educators would not so often present competition for place as the object of education. I know it is a dominant spirit, bred in our natures and of our necessities, and that it is often used to stimulate the otherwise listless. It may be to a certain extent necessary, but it always diverts attention from the real end in view, and makes us rivals instead of kindred searchers after truth. I firmly believe as the desirability of education for its own sake becomes better understood, that this spirit of competition will disappear, and that a university-trained man will come to believe that his education has been everything to him, even if it has not brought him high position. Spinoza says: "I am certain that the good of human life cannot lie in the possession of things, which, for one man to possess, is for the rest to lose, but rather in things which all can possess alike, and where one man's wealth promotes his neighbors'." This is sound philosophy, which can well find its application in things intellectual. I recognize the fact that I am uttering thoughts eminently opposed to our practical American spirit, which must see a financial reward even in university training. I am

not in the least decrying the financial benefits of such training, for they will come and are never commensurate with the preparation; but I would have them considered as the *incidents*, not the *incentives*. The incentive should always be present whether the incident occurs or not.

It has been often claimed that university men are hedged in by their routine of work, with no wide horizon that will include within its reach the world beyond the classroom; that this narrowness of vision, this constant association with inferiors in mental attainment, cultivates a pedantic, dogmatic spirit. I am compelled to say that this is still too true, but becoming less so every year. The ideal university is not only a power for stimulating intellectual activity among its immediate students, but also among that larger range of non-resident students who can be made tributary to it, for its instruction must reach farther than the sound of its professors' voices. It must not be a deep well, with its pure waters curbed about and held in shadow, to be drawn from, bucketful at a time, only by those eager enough to come to it and draw; but it must be a strong, perennial spring, not only satisfying those about its brink (doubtless always the best place to drink), but also sending its overflowing waters into the world beyond. In short, university men must be productive, and by voice or pen speak to the world beyond their classrooms. They are expected to work; any conscientious work should bring results, and these results should be made known. But I refer here, not solely to this technical "output," but also to that popular presentation which, I am free to say, is just as beneficial to the professor as to the public. The public needs training by professors, and the professors need training by the public. Anyone who stands before an intelligent American audience and imagines that he is the sole benefactor of the occasion, needs to address more audiences. And why must the public depend for its information upon patent medicine venders rather than upon the regular profession? I think that our professional teachers are too much to blame for this. The public will gladly hear them, and I think the

public deserves to get much of its information from reliable sources. My point then is this, That a university should not only educate its students, but, so far as practicable, the world beyond.

In conclusion, I must say that no university has any right to exist that does not seek to strongly impress upon its students the exceeding beauty and strength of right living. The training which reaches only the intellectual part of man has fallen far short. That nobility of character which is far removed from moral weakness is more to be sought after than freedom from intellectual weakness, and I think all will concede that the cultivation of character is a prominent duty of a university. I feel strongly upon this point, and would not think of tolerating for a moment any influence in either professor or pupil that would lower the high standard of morals that must be maintained. Therefore, while all the varying beliefs and disbeliefs must meet on perfect equality, as is befitting an intellectual community seeking for truth in every direction, we must all unite in one belief, that the only kind of life worth living is that one which is governed by the highest moral principles. As for myself, I find the best statement of these principles in the utterances of the great Nazarene.

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VI

SOME NEW TEXT-BOOKS OF ETHICS[1]

The teaching of ethics has awakened a widespread interest within recent years, and to this interest we may probably attribute the recent appearance of a number of text-books to supply the want created by it. That want is no doubt due to a combination of causes. Chief among them, probably, has been the reconstructive spirit in the reaction against the real or supposed leveling tendency of evolution. At first, this reconstructive effort took the form of rather bulky volumes, such as those by Martineau, Green, and Sidgwick, which were beyond the comprehension of all except those already well grounded in the subject. Latterly, however, the movement has found expression in more elementary text-books for beginners, in response to the demand for a certain kind of influence upon the youth of the country. The whole movement may be compared to the Socratic and Platonic reaction against the skeptical and demoralizing tendencies of Sophistic doctrine. This reaction was an effort to revive the moral consciousness of Greece, and the modern movement is an attempt to counteract the reaction against Puritanism which was produced by the doctrine of evolution; not by restoring Puritan ideas, nor by refuting the theory of development, but by giving suffi-

[1] *Conduct as a Fine Art.*—The Laws of Daily Life, by NICHOLAS PAINE GILMAN: and Character Building, by EDWARD PAYSON JACKSON, Boston: Houghton, Mifflin & Co., 1892, pp. 379.

Practical Ethics.—By WILLIAM DE WITT HYDE, D. D., President of Bowdoin College. New York: Henry Holt & Co., 1892, pp. 203.

An Introduction to Ethics.—By J. CLARK MURRAY, LL. D., F. R. S. C., Professor of Philosophy, McGill College, Montreal. Boston: De Wolfe, Fiske & Co., 1892, pp. 407.

The Elements of Ethics. An Introduction to Moral Philosophy.—By J. H. MUIRHEAD, M. A., Lecturer in Mental and Moral Science, Royal Holloway College, Egham. New York, Charles Scribner's Sons, 1892, pp. 239.

The Principles of Ethics.—By BORDEN P. BOWNE, Professor of Philosophy in in Boston University. New York: Harper & Brothers, 1892, pp. 309.

cient prominence to ethics in the curriculum of public schools and colleges to exercise uplifting an influence, if possible, upon the character of youth.

But this conception of its purpose is an entire misunderstanding of both the nature and the object of scientific ethics. Text-books are not written for purposes of exhortation, or to do the work of the sermon and the Sunday school. They are designed to give plain, unadorned instruction in regard to facts and general principles, not to impart moral character to the student. The mere fact of studying a subject and thinking about it, may issue in an influence upon character; not, however, by virtue of the mere intellectual knowledge obtained, but only by virtue of a predisposition of will in that direction already existing. The study of scientific ethics has no tendency to produce moral character which does not already exist. It has only two objects, both of which are very remote from the influences moving the will. They are, first, the analysis and explanation of moral phenomena, and, second, the solution of "perplexities of conscience." The former satisfies the scientific desire for system, and the latter the desire for confidence in the primary judgments of conscience. Both are satisfactions of a logical instinct, and the latter would have no place at all were it not that the moral nature is fully enough developed of itself, and requires only a corresponding development of intelligence to insure a correct choice in the path of duty. This is only to say that scientific ethics exists to enlighten the intellect, not to mold or move the will, and that any system which supposes it capable of doing the latter, is laboring under the delusion of Socrates, that "knowledge is virtue," and that men will always do the right if they only know what is right. Now this enthusiasm, bordering on a craze, for ethical instruction as necessary for saving the character of American youth, simply ignores the proper functions of the subject, and also the important fact that moral character is more easily produced by personal example and precept in any subject whatever than by any amount of teaching in scientific ethics. Personal relations and considerations are

much more powerful influences on the will than any scientific and logical investigations. Hence, if moral earnestness can be awakened in any study, say literature, it will reflect its light and heat in other departments of the subject's life. Scientific ethics may then come in to crown the maturer period of study, not as a producer of good will, but as an enlightener of moral earnestness already existing. Before this period the only effective agency in molding the character will be the enforcement of certain habits and the occupation of the mind in serious and thorough study of it matters not what subject; or, as one writer has put it, "to fill every smallest detail of the daily school work with a demand for self-control and allegiance to duty, with constant reference to truth, and with appeals to conscience."

But how are the books under notice fitted to meet this requirement? The answer to this query, however, makes a distinction necessary. This distinction is between ethics taught in high schools and ethics taught in colleges. The former must necessarily be more elementary, and the latter more advanced. In regard to high schools I am decidedly of the opinion that theoretic and scientific ethics should not be taught at all. They are not qualified, according to previous observations, to accomplish the object desirable there, and for a thoroughly scientific study of the subject the students are not prepared. The volumes before me have various merits and demerits in this respect. *Conduct as a Fine Art* is neither a theoretical view of ethical problems nor is it adapted to text-book work in practical ethics. This defect, however, must not be construed as a reproach to the authors, because the two essays in the book were written in competition for a prize "for the best essay, treatise, or manual adapted to aid and assist teachers in our free public schools," and "to thoroughly instruct children and youth in the purest principles of morality without inculcating religious doctrine." It is unquestionably suggestive and helpful to teachers, but can have no pedagogical value beyond that purpose. The second essay is in the form of a dialogue, and while it represents a

acute and unique analysis of young students' minds and thoughts, is much less fitted for use by students than the first essay, and this both as a scientific treatment of ethical questions and as a body of rules for directing conduct in practical emergencies. Nevertheless, the suggestiveness of the essays to teachers remains as an important merit.

The two writers are very successful in their main object, namely, in showing that morality can be taught "without inculcating religious doctrine." The fact that such a discussion should be deemed necessary at the present day, after Protestantism has so long taught the separation of Church and State, is not only a little remarkable, but it significantly indicates what most people believe the teaching of ethics is for, namely, to produce good people. It is astonishing, on the other hand, to find writers like the present, who oppose the religious view, assuming that this is possible, and then proposing a scheme which can be no more effective in this direction than that of their opponents. They should rather have shown that scientific ethics, and this includes the theological theories of morality, has no place whatever in our free public schools. This does not exclude the teaching of morality. But ethics and morality are entirely different things, and the latter so far from being a subject for instruction by itself should be a part of the instruction in every branch of study. It is possible also to produce and to teach a system of rules which, without appealing to any abstract sanctions, can show young persons the necessary means to results that they have already set before themselves as ideals. But a practical book of this kind has yet to be written.

Perhaps my last statement is contradicted by President Hyde's little volume. It is certainly very nearly the kind of book wanted for moral teaching in the public schools, though it may be a serious question whether it would be as serviceable when used as a text as it may be when suggesting to the teacher his method and the matter to be inculcated. But whatever merits it may have for the public schools, they are

certainly wanting when considered for the higher needs of colleges both in theoretical and practical ethics.

Professor Murray's volume is not suited to public school work of any kind. This is not a demerit, because it cannot be said to have been intended for such a purpose. But the fact indicates very clearly the intellectual interest to which it appeals, and that is the scientific interest. It does not discuss current practical problems at all, and what it treats as "practical ethics" is only a classification of duties with a brief statement of their grounds. The work professes only to be an elementary one, and in this respect supplies a much felt want. The chief fault, however, at the outset of the book is the very inadequate definition and discussion of the elementary concepts of ethics. Without any attempt at this, the author at once plunges into a statement about man's psychical and physical nature. The student is not informed in any clear way as to what this means. The relation of heredity to moral problems is not understood by beginners in the study of ethics, and yet Professor Murray assumes all this. If it had been first explained that heredity and such influences were limitations on the possession of responsibility, and if this had been defined and analyzed, it would have been easy to detect the relevancy of the discussion. But as it is, the student has no preparation for the discussion of "moral consciousness as cognition" or for the classification of ethical theories which very soon follows.

Of the remaining portion of the book a better judgment can be expressed. The analysis of conscience is very good, and the treatment of utilitarianism, although brief, is admirable. The problem of freedom, I think, is not rightly conceived, because it is not distinguished from responsibility. The most serious fault, however, in my opinion, is the classification of ethical theories as "Epicurean" and "Stoic." The definition upon which the classification is based is correct enough, but the current and historical use of "Epicurean" and "Stoic," with their associations, makes them too narrow and too inexpressive of the real principles marking the difference

between modern ethical schools. Martineau's classification is much better. The classification of duties, however, as "determinate" and "indeterminate," coinciding with the distinction between justice and benevolence, strikes me as particularly happy.

Mr. Muirhead's *Elements of Ethics* has still less fitness for public school instruction than Professor Murray's. But it is only just to say that it, too, was not intended to serve that purpose. It was written as a course of lectures for university extension work, and afterward modified for publication. It is less elementary and more philosophic than any of the three volumes already noticed, and seems even a little heavy for the ordinary public which listened to the lectures and for whose reading it has been published. Nevertheless, it makes, in some respects, an admirable text-book for beginners, although it requires to be supplemented by lectures and explanation. The author is evidently a disciple of T. H. Green. But he has not encumbered his thought and style with that philosopher's weaknesses, and hence has succeeded very well in reaching the understanding of students. There may be some question of the pedagogical value of this book, however, since the general analysis is not so systematic or logical as is desirable. For pedagogical purposes there should be a careful classification of ethical theories, and a more analytical account of their evolution. Then a most decided weakness, considered pedagogically, is the complete absence of anything bearing upon the particular virtues, their origin and ground, and upon the practical problems which the science of ethics is called upon to solve. Nevertheless, I consider it a very useful little book, on the ground of its scholarly and earnest spirit.

Professor Bowne's volume is the most advanced work on the list. It is intended for collegiate classes only, and includes a discussion of both theoretical and practical questions. I regard it as the best book that has come from Professor Bowne's pen. The treatment of various mooted questions is, on the whole, fair and judicious. Occasionally a sharp thrust is made which, after all, is too entertaining to be

minded, although it is probably the result of classroom freedom that may well be omitted in a publication. For advanced work the volume is a good one, and might be used very successfully in introductory work if accompanied with sufficient historical and explanatory exposition. The style is very clear and intelligible. The point of view and doctrine maintained cannot be the subject of consideration here, since I am writing of it solely as a pedagogical instrument. In this respect I regard it as excellent, barring the defect of analysis, which should have been more complete. But this fault aside, one cannot refuse the work the merit of being the best in the field, according to my own idea of the matter. This praise is based upon the fairness with which both sides of ethical problems are stated. Teachers know the value of this spirit in an author, although it is often maintained at the expense of clearness, and to the dissatisfaction of those narrower minds who must be on one side or the other of a question. Although his style is a little dogmatic, Professor Bowne's admissions concerning opposing schools of thought will encourage a judicial spirit in the student, and this feature of the work will give it much pedagogical value. Some complaint can be made that the doctrine of evolution is not adequately treated, and that its importance has been minimized. I think the author correct in the limitations which he imposes upon the method of evolution, but in spite of admissions regarding its value there is some suspicion that they are grudgingly made, and I should have been glad to see a more elaborate discussion of the theory.

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VII

EDUCATION IN FOREIGN PERIODICALS

ORAL TEACHING

J. W. Langsdon in the London "Journal of Education"

"I have just come back from Germany very deeply impressed with the results obtained in English and French in the two Realschulen that I visited there. These results are obtained on the Vietor system, as it was always called to me, though many other names may be mentioned, with corresponding modifications of method, in connection with the new school of modern language teaching in Germany. The theory, at least, of the system is known to readers of the *Journal*, and I only wish to add my testimony as to its practical success. In Bockenheim (Frankfort) the third class, taken by the Director, Dr. Walter, have been learning English for twelve weeks at five hours a week. The average age is thirteen, and the number of boys thirty-eight. The whole lesson is done by word of mouth and blackboard; no books are used. The boys understand readily; they respond easily and correctly, and the facility with which they guess the meaning of and pick up the pronunciation of new words by ear alone is—I speak without exaggeration—marvelous. Of course, their vocabulary is limited. The points I wish to dwell upon are the correctness of pronunciation and, more important still, of accent, the readiness in using the words they know and in forming new combinations, and the extreme eagerness and interest of the children. Of course, Dr. Walter is a teacher of exceptional power, but he assured me that since he adopted Professor Vietor's system he had been more successful and had fewer failures in his class. But I have seen the same system successful in the hands of very inexperienced teachers. In Marburg, Professor Vietor has managed to get permission to take the third class in English also. Most frequently the lessons were given by candidates for examination, quite inexperienced and often quite unknown to the children. But I always noticed the same points—extreme interest on

the part of the children, readiness in replying and in picking up new words.

"For some time I have been trying to introduce more oral work into my own teaching, and am now more than ever convinced that, while our alphabet remains as it is, words must be heard before they are seen."

ON THE TRUE LEVER OF EDUCATION

H. G. WELLS IN THE LONDON "JOURNAL OF EDUCATION"

"I shall never believe very much in educational reformers until they commence a vigorous mission to examiners. Indeed, I would almost say that the examiner is, under existing conditions, the educational reformer's only legitimate game. But such a generalization as that requires consideration. Whether it is true or not, there can be no doubt that the educational reformer neglects the examiner shamefully. Reviling the 'fetish of examinations,' be it understood, is an altogether different thing. In that the element of personality is eliminated, and this factor is really the gist of the whole matter. To eliminate personality is always the trick of a reformer who is eager for a cause, but not earnest for a fight. Then, you see, there is nobody in particular to hit him back. But the worth of the cause is affected.

"Examinations may be anything, and indeed also almost, or even absolutely, nothing. 'The fetish of examination,' therefore, takes its particular character in particular cases through the intermediation of its priests. Where they are benevolent and wise, it is essentially a beneficent deity; and only where they are vain, weak, mean, or foolish, does it become a Juggernaut. The malignant and the misguided examiner are the real foemen of the teacher, and these we must carefully mark out, and then in due manner assail, if our world-mending enterprises are to be anything more than so much valiant defiance of windmills or mere beating of the air.

"The teacher may as well dream of getting himself made exempt from gravitation, or altogether fireproof, as to think he will some day be free of examiners, good or bad. The teacher must, from the nature of things, be under the heel of the examiner all his life, as inevitably as he must face death at the end of it. In the happily dying state of affairs, the parent—rather *both* parents, worse luck!—were his sole exam

iners *ex officio*. Their syllabus was rigid, but peculiar. Much attention was given to his personal appearance; he might, for instance, be plowed for hats, or be distrusted, and lose marks, through his necktie. His wife, too, was a 'compulsory subject,' and he had to steer her a difficult course between commonness and uppishness. Practical—even ostentatious—religion was a *sine quâ non*, and social science within limits. It was expected that he should sympathize with 'little Georgie,' be firm and kind in accordance with erratic and variable standards, and possess encyclopedic knowledge; but in this last requirement the examiners were anything but searching. Many of us have worked—and some are still working, some with special aptitude, and some with active protest, dying sullenly down to cynical acceptance in the course of time—to meet the requirements of this unwritten syllabus. Happily, nowadays, in many cases, the parent has seen fit to delegate his duties, and he will probably do still more in that direction in the future. At least one hopes so. Part of the bitter cry against set and definite examinations comes, I fancy, from the experts at the old requirements.

"And, in the future, if the titular examiner be torn down from his present eminence and altogether done away with, it will only be that something more indefinite and less accessible to criticism will replace him. There must always be some discrimination between teacher and teacher, unless each of those who would teach is given his mathematical share of the great total of youth—his quota of

$$\frac{\text{number of pupils}}{\text{number of teachers}}.$$

The teacher, if he does not prepare himself and his pupils for the sporadic or periodical inspection of a specially appointed and specially prepared authority, with some finality of decision, must work with an eye to a more informal judgment—to Governor A., who dislikes to hear boys about after mealtimes; to Governor B., with Macaulay's ideal of omniscience; to Governor C., who takes his stand on Rousseau; and to Governor D., who detests sports. The examiner, in short, the teacher has always with him, the shadow is he that displays the teacher's material solidity, and from the desk of the junior assistant he is by us, even to the grave.

"The teacher lives with the examiner as his dominant condition. But these educational reformers write as though the

teacher had no conditions—as though he was as free as a Lamia to take whatever beautiful form he might fancy. They keep on writing for the teacher to do this and that and the other in the way of improvement, while they might as well preach perfection to the clay in the potter's hands. I suppose I have read in the last year in various publications more than a hundred new happy suggestions and incontrovertible criticisms of scholastic methods; how geography may be made a joy, science a discipline toward perfection, and history a dream of delight. And the old things go on. These improvements are no more than teachers' day dreams. The examiner pipes and the teacher must dance—and the examiner sticks to the old tune. If the educational reformers really wish the dance altered they must turn their attention from the dancers to the musicians.

"Something perhaps might be done by instituting examinations for examiners. Examiners are, in nine cases out of ten, simply experts at special branches of knowledge or art; they have about as much special aptitude and training to sort students, when they begin, as a class, as they have to cut out suits of clothes, or act as tea-tasters. The typical examination, two or three hours of hard writing, which is so commonly reviled as if it were the only kind of examination possible, is the natural refuge of these unfortunates. In many cases, being simple-minded seekers after truth or beauty, they are less qualified than common people to detect subterfuge and specious vagueness. In many cases their interest is not in examinations at all, and they follow precedents—indolently. In many cases they live, as it were, in the borderland of knowledge, and have forgotten the paths that led them there. They ask for conclusions that may be learnt by heart, and not for evidence of an intellectual process. Like worthy mediæval householders, staff and scallop shell are evidence enough to them of a pilgrimage. In all these cases the examiners understand the subject of examination well enough, but the object not at all. They seem to think that the examination is a genteel substitute for a raffle of places—or it is an inexplicable duty, like a Philistine's church-going—or it is an insistence upon orthodoxy, like the Inquisition. And they keep on at the tune that chance or the spirit of mischief has put into their heads, and the teacher, perforce, dances thereunto.

"Perhaps the examiner who is an educational theorist is

better than his peers. It may be. I believe indeed that if every examiner were forced to read something about, and think about, the theory of examinations, it would be very much better for us. But the great improvement needed is a moral one. Examiners examine so badly because they fail to appreciate their terrible responsibility. We want to awaken some inkling of this in their minds; to lift them out of their stupid moral insensibility. I believe if some examiners, complacent enough now, could be brought face to face with the mischief they are doing, in a concentrated concrete form, they would drop their brief authority forthwith and flee utterly away. What a terrible mass it would be in the aggregate—an inchoate horror wrought of minds that might have thought and were set to rote learning, minds that might have learnt and acted and were flattened out in books, souls that might have created, but instead they died, a Frankenstein monster of duty ill done, a living decay!

"The examiner should, in the first place, be a philosopher. Instead, for our examiners we take specialists. He should have considered before all things the relation of his particular culture to the whole world of human thought and action. He should have asked himself why his candidates are studying in his particular realm of excellence; how they may study at the greatest permanent profit to themselves, and how at the least. He should know enough of their thoughts and feelings to know how he looks in their eyes and in those of the teacher. He must be able to plan his questions so that proper methods must, in the phrase of the coach and examinee, *pay* for the examination, and improper methods be a waste of time. He must be a philosopher, then, in the old sense of having wide and comprehensive views, thinking of the scope of knowledge and of the aims and ends of things. After that he needs most urgently some actual experience of the kind of teaching he is to examine. And thirdly—essential, perhaps, but quite after these other things—comes an exhaustive knowledge of his subject.

"These specialists, on the other hand, have no sense of proportion. Each candidate seems to them to be an aspirant to specialization in their particular branches; at least they treat them as if they were such aspirants. The end of a secondary school course in English one would imagine to be a sufficient command of that language to read and appreciate the shades of

an author's intention and to write and speak discriminatingly. Perhaps English is also useful as an exercise in classificatory method. The specialist examiner, however, would make it a field for recondite learning, and sets youngsters, who could as soon fly as write pure English, investigating the value of the terminal *t* in *that*. Again, in science, the specialist's ideal of a practical examination is to demand manipulation that will be useful for research. The London University examination in biology, which, if properly handled, might force upon every medical aspirant so much mental culture as a sound appreciation of organic evolution involves, is, among many excellences, disfigured by the extraordinary prominence given to certain tricks of dissection—the extraction, unbroken, of a very small organ (the ovary) from the earthworm, for instance, and the discovery of a minute branch of the tenth nerve in the rabbit. In training students to perform such dodges as these, the time of a teacher is necessarily taken from really educational work, and the mechanical crammer, endowed or unendowed, finds a sufficient excuse for his misdeeds in the examiner's weakness.

"There is a certain type of examiner whose idea seems to be just to take as little trouble as possible. Now practical examinations are a bother. So much has been said of the necessity of practical examinations in natural science and (in the form of oral tests) in languages, that they need hardly be advocated here. The principle that, to test a knowledge of things, especially in the case of the young, whose descriptive powers are feeble, one must examine with things, is a truism of educational science. Yet withal these practical examinations are long in coming. Examining bodies seem to be waiting for the schools to substitute practical for legendary teaching, before they make any innovation—a policy which certainly has a powerful element of permanence. Sometimes a well-meaning examiner admits the weakness of his position. At the last London Matriculation examination, for instance, the examiner in one particular science asked his candidates to describe only experiments they had actually seen.

"One can fancy what happened. Picture to yourself two candidates, A. and B.—A. from an experimental teacher, B. from the ideal mechanical crammer of the pedagogic fabulists. A. remembers the experiment distinctly, and the formulæ that represent it, piles up—in vast Cyclopean masses—his description, speaks of the pneumatic trough as a pan, call flasks bot-

tles, and beakers glasses, wanders wordily, losing his thread and finding it again, and ends his career in a dirty smashed-up drawing of what he fancies he saw, and the correct formulæ. B., fresh from the hands of a patent grinding and polishing mill, disregards, of course, the examiner's admonition, and turns out from his memory a sketch he has learnt—by repeated copying—of the experiment in question. Pithy words explain this; no verbosity, no wordy clouding, no evidence whatever of the thought obscuring the thing. Picture now the assistant examiner weighing the two papers! How else can it be when a knowledge of things is tested by purely verbal methods?

"Unless they improve too rapidly—of which, at present, there is apparently no serious danger—teaching follows after examinations, formal or informal. There, then, is the objective point for the educational reformer. The teacher may be worried and made discontented, he may even 'quarrel with his bread and butter,' but the teacher will not be seriously affected, by any exhortations of the educational reformer in his direction. His answer—firm and, considering the provocation, remarkably inoffensive and quiet—to the reformer is this: 'Will you, please, mind your own particular business—over there—and leave me, for the present, alone?' So far as scope and method go, the examiner is the educational lever; and when the educational reformer is not at that lever he is, I humbly submit, wasting his time."

VIII

DISCUSSIONS

LARGE SCHOOL BOARDS OR SMALL?

Upon this subject there are as many opinions as there are different methods of electing boards of education. In Missouri, except in two or three cities having special charters, the boards of education in cities, towns, and villages, consist of six members only. A school board in this State is a body corporate, and is entirely distinct from and independent of the municipal government. Furthermore, in all the State educational institutions, controlled by a board of curators or regents, as in the case of the State university, or of the State normal schools, only a majority of said board of control can belong to one political party. If seven members constitute the board of curators of the State university, not more than four members can belong to either political party. This explanation will prepare the way for the remarks which I have been requested to submit upon the subject of school boards. To be more explicit, I will describe the simple plan pursued in the nomination of members of the board of education in this city, and which has been in successful operation for more than fifteen years.

About twenty years ago, and even several years later, many cities throughout the country were troubled with the school board question. The yearly elections called attention to some of the most glaring defects in the modes of selection then prevalent. It was quite evident that the city schools were, in too many cases, put directly under the control of partisan and sectarian influences. As the schools of this city had at no time been regarded as a party matter, several of the leading citizens of both great political parties decided to put the city schools on a non-partisan basis, and to give public expression to their views in the two city conventions. The position taken by these gentlemen was that the schools were organized and maintained by all the people for the children of the people living within the limits of the school district, and that in order to make the schools non-partisan and to place

them beyond the pale of party politics, the board of education should be composed of three Democrats and three Republicans, and that only men of the highest integrity should be elected members of the board of education. The ideal proposed was that the schools should be managed on strictly business principles.

Members of the school board are elected for three years under the present law. The election takes place at the time of the city election. Members are voted for throughout the school district. The district at present contains a greater area than the corporate limits of the city. It is also arranged that the term of office of two members expires each year. These members do not belong to the same party.

A few sentences will make plain the mode of election. If the Democrats hold their city convention first, after all the nominations are made, and the local committees appointed, a resolution is introduced recommending two men, one a Republican and the other a Democrat, to be voted for by the citizens irrespective of party to fill the vacancies that will occur in the school board. Then when this recommendation is passed, the convention adjourns. It makes no difference which convention meets first, this action is taken. Of course, it is understood that the two men recommended are satisfactory to the representative men in both parties. The newspapers, public sentiment, and all good citizens indorse the policy. For example, the following was adopted by the Democratic city convention last March:

"Resolved, That the Democratic party of Kansas City will in the future, as it has in the past, maintain the integrity of the public school system and keep it entirely free from all political and sectarian influences, and in carrying out this object, this convention recommends that Crawford James and E. L. Martin be selected with Gardiner Lathrop and L. K. Thatcher to fill the vacancies occurring in the school board."[1]

Thus, back of the members of the board of education are all the citizens as represented by the two great political parties. This is, in my opinion, the best moral support that public officials can have.

Again, six men, selected as they are here, will do their work better and more efficiently than twelve or twenty-four.

[1] Four were elected, owing to the fact that under the present charter, elections occur biennially.

The board being small, "speechifying" is entirely omitted. In eighteen years, no member of the board of education has ever made a speech at any session. Business is transacted in a quiet, energetic way.

At present the board of education of this city is composed of business and professional men. One has been a member of the board for seventeen years; the president, Judge R. L. Yeager, has been a member for nearly fourteen years; one for eleven years, one for nine years, one for six years, and one for more than a year. These gentlemen have the confidence of the people of the city. They are representative citizens. Since I have been in Kansas City, no scandal of any sort has ever been intimated in regard to the board of education or of any member thereof.

This method of selecting members of the school board is now known as the "Kansas City Plan," and it is in use in nearly all the towns of the State of Missouri. It is the best that I am acquainted with.

JAMES M. GREENWOOD

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ON SO-CALLED HONORARY DEGREES

The point made in the EDUCATIONAL REVIEW (IV: 208) against conferring the degree of Ph. D. as a mere honor, is well taken. I believe that a large majority, certainly a large proportion, of the college faculties in this country share your views. But what are they to do when boards of trustees take the matter in hand and grant the degree without consulting them? Cases have occurred where these bodies have not only acted without the sanction of the faculties whose masters they were, but against their vigorous protest. There are men, some of them prominent in educational circles, whose influence can be bought with such a low price. And there are boards of trustees short-sighted enough to suppose that the influence of such men will be of more value to an institution authorized to confer degrees, than a reputation for care in the bestowal of its honors. On the other hand, the mere requirement of post-graduate study and a thesis does not much mend matters. I have read a number of these productions, a few by American students in Germany, that are mere

compilations, and evidently the work of persons who did not know what is meant by independent research. Yet they were published as dissertations for which the degree of Doctor of Philosophy had been given. The degree business in this country is a huge farce, and has long been so. Degree-conferring institutions are usually liberal in the inverse ratio to their importance. These things will never be otherwise until the intelligence of the governing boards of our colleges and universities rises far above the present average. Nor is it wise to assume that all college faculties are above reproach herein.

CHARLES W. SUPER

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GENERALIZATION IN ARITHMETIC.

In *Education as a Science*, Mr. Bain observes that mathematics "does not teach us how to observe, how to generalize." This statement is quoted with approval by Mr. W. H. Payne in the chapter on Education Values in his *Contributions to the Science of Education*. It is undoubtedly true of higher mathematics, where the observations and generalizations are not of sufficient difficulty to afford mental discipline for minds mature enough to grasp the subject; but it is altogether different in the study of arithmetic.

In primary numbers, taught by the Grube or any rational method, there is a valuable education in quantitative observation. Compound numbers, taught objectively, is a subject which develops observation. The comparison of the solutions of similar problems, and the development of one class of questions from another, simply afford a training in observation.

I wish, however, more especially to protest against the fallacy that arithmetic, properly studied, does not teach the pupil how to generalize. It seems that this error depends for its current popularity on inferior methods of presenting that subject. Any student of mathematics who reads *The Teaching and History of Mathematics in the United States*[1] is forced to the conclusion that the mathematical teaching in this country has been of an inferior character, and that an improvement in methods was contemporaneous with the decline of

[1] Published by the Bureau of Education, Washington, D. C.

English influence. Now, Mr. Bain is a Briton, and Mr. Payne seems to have accepted his criticism somewhat incautiously.

It is worthy of note that Mr. Bain does not say that mathematics does not teach how to apply principles. This seems to indicate that he approves of that teaching of arithmetic which satisfies itself with allowing pupils to learn rules and solve problems according to rule, *i. e.*, to proceed from the general to the particular. This, however, is unscientific. The scientific way of teaching arithmetic is to present the solutions of individual problems, and when these are understood, to have the members of the class make the corresponding general statement or, as it is commonly called, rule. This general statement should then be applied to the solution of similar problems. In the case of pupils who study arithmetic, this effort to generalize is of sufficient difficulty to afford valuable mental training.

I emphasize this because arithmetic lends itself in an easy and natural way to generalizations, which are essential to the proper presentation of the subject, and which are perhaps more important, inasmuch as they prepare the student for the more difficult generalizations of more abstruse studies.

A. F. AMES

RIVERSIDE, ILL.

IX

REVIEWS

English Education in the Elementary and Secondary Schools.—By ISAAC SHARPLESS, Sc. D., LL. D., President of Haverford College. New York: D. Appleton & Co., 1892, pp. xiii, 193. Price $1.00.

In no one of the leading civilized nations is education in so chaotic a state as in England. The traditional English policy of *laissez faire*—which really means, "Every man for himself and the devil take the hindmost"—has prevented any such firm grasp of the educational problem as Prussia, France, the United States, and many smaller countries have taken. It is hard to say positively, even now, whether, with all its broad privileges of suffrage, Great Britain's conscience has been aroused to the absolute necessity of popular education. Every step in the development of a free school system has been vigorously combated, and only the pressing necessities of party politics prevented a battle royal over the Free Education Act of 1891.

Secondary education is even worse off. The rich have the great Public Schools, and private establishments of very varying degrees of excellence, at their command; but the middle classes and the poorer elements of the population are virtually restricted to a technical education, or the scanty learning of night schools. The universities, again, are essentially aristocratic, and not in contact with the great mass of the population. It is this lack of public secondary schools, and the exclusive character of the universities, that have made the University Extensionmovement so significantand so successful in England. It is the absence of these conditions that renders the American imitation of that movement of so little value and importance. All this is very interesting, and American students of education ought to know about it, its causes and its results.

President Sharpless's book, however, will not render them any great amount of assistance. In a very matter-of-fact way he goes over, after Craik, the story of the English elementary school system since Bell and Lancaster. His facts are correct,

and are stated in a logical order. Then follows a chapter on secondary schools, which is introduced by the truthful but discouraging statement that "there are no free secondary schools, and but few where the charges are within the compass of any but well-to-do" (he might have said "rich" people). The provisions for the training of teachers, the peculiarities of the great Public Schools, so-called, and the new movement for technical education are also described briefly.

The book is not lacking in information, but in style, in sympathy, in insight, and in power of comparative statement. It is very dry reading. It is not to be compared with Fraser's *Report on American Schools*, or with Matthew Arnold's last report on foreign schools. It is neither so well arranged nor so definite as Mr. James Russell Parsons' reports on the French and Prussian elementary schools. President Sharpless saw the surface of things, read the law and the Code, and evidently wrote hurriedly. He has not made nearly so good a book as he should have done.

N. M. B.

The Elements of Logic, Theoretical and Practical.—By JAMES H. HYSLOP, Ph. D., Instructor in Logic, Psychology, and Ethics, Columbia College. New York: Charles Scribner's Sons, 1892, pp. xi, 403.

Dr. Hyslop has certainly given us a stimulating text-book on logic. His treatment of the subject not only invites but compels the study of questions of fundamental importance, by the student who makes any attempt to master it. This characteristic results, in part, from his not having confined himself to matters that logicians are generally agreed on; in part from the thoroughness and candor with which he has discussed debatable questions. Dr. Hyslop not only tries to probe questions to the bottom, but his supreme motive evidently is to get at the truth.

For this reason his book constitutes an excellent introduction to the subject; the best, on the whole, that I know of. The student becomes acquainted with so many open questions that, if he has any aptitude for the subject, he will wish to investigate them further.

I am not, indeed, always able to agree with the author even when he expounds generally accepted views. Is it true, for example, that logic, as a science, aims to ascertain what are the laws of thought? J. S. Mill's definition—the science of

those operations of the understanding that are engaged in the estimation of evidence—seems to me decidedly preferable, although even that does not cover the ground. Why is it, for example, that two capable men, with the same evidence before them, may sometimes honestly reach different conclusions? The same evidence *ought*, one would think, to lead to the same conclusions, but it often does not. Whose business is it to tell us how this happens? If it be said that it is the business of the psychologist, it will certainly be admitted that it is the business of the logician to point out the circumstances or describe the conditions under which belief is proper. Now, if I am right in holding with Fraser that *pure intellect*—intellect unmodified or colored by any element of feeling—would make *belief*, as contrasted with knowledge, impossible; if James is right, as I believe he is, in holding that "that is adjudged real" (or true, I suppose he would say) "which has intimate relation to our emotional and active life"—then intellectual elements, plus feelings of some kind, must be the cause of all *believing*, and the whole cause must be investigated by logic before it can describe the circumstances under which beliefs can be accepted as true.

Putting the same point in another way, logic still seems to be dominated by the conceptions of rational psychology. It seems to suppose that logicians are concerned only with purely intellectual operations, to the neglect of all other modes of mental activity. If the truth is, as I conceive it, that in reasoning—reaching conclusions in any department, except pure mathematics—some activity of our emotional nature is an indispensable prerequisite, logic is bound to take note of it, and until it does there will be an impassable chasm between the logic of books and the logic of life.

I demur also to Dr. Hyslop's account of the relations between logic and psychology. Psychology, he says, is the science of the efficient causes of mental phenomena, including the rational processes; logic, of the formal causes of thought, of valid rational processes. What Dr. Hyslop calls psychology, I should call metaphysics. Psychology, as a science of observation, and logic both deal with rational processes. Psychology describes them as they actually occur and ascertains laws of existence and sequence between them and other mental phenomena, and also between them and other mental phenomena

on the one hand and the phenomena of the brain on the other. Logic marks out the course, so to say, which the mind ought to pursue in going from premises to conclusions. The ideal of one is to know what *is* in the sphere of a certain group of phenomena; the ideal of the other to know what *ought to be.*

Nor have I been convinced by Dr. Hyslop of the propriety of his distinction between what he calls mathematical concepts and qualitative concepts. The former denote, he says, a class of individuals "absolutely identical in kind"; the latter, a number of individuals "essentially different in kind, but with common properties of a character to justify the use of a common name." In the first case, "the comparison is between individual wholes, or properties, to which the common name applies in the same sense, and without a difference. In the other, the comparison is between individual wholes, or properties, to which the name applies with a difference." He gives "two" as an example of mathematical concepts, and "man" as an example of metaphysical concepts. "Two" represents the whole class of "twos," he thinks, "irrespective of the difference between common and accidental qualities; man, on the contrary, denotes individuals with such differences that no one of the individuals is wholly representative of the class." I confess I cannot see the difference. All "twos" are the same in the matter of *number;* all men in the matter of *rationality.* In order to seize upon the twoness of objects, I must abstract from their other qualities; in order to seize upon the rationality of men, I must abstract from their other qualities. In a word it appears to me that the mode of reaching the two classes of concepts and the nature of them, after we have reached them, is the same, and that there is, therefore, no reason for burdening logic with technical terms to describe them.

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Griechische Schulgrammatik.—Von Dr. WILHEM VOLLBRECHT, Oberlehrer am Gymnasium zu Ratzeburg. Leipzig: O. R. Reisland, 1892, pp. xviii, 267.

This book is the fruit of seven years' preparation and of many years' experience in teaching. In its production all works that have appeared of recent years, in any way bearing on the subject, have been consulted, but especial indebtedness

is acknowledged to the works of Kern, Lattmann, von Bamberg, Grosser, Kaegi, Waldeck, von Hornemann, and to the new edition of Kühner, edited by von Blass, the proof sheets of which Dr. Vollbrecht had the opportunity of consulting.

The only excuse for a new Greek grammar is some improvement on those already existing, and this improvement, in the case in hand, is partly of the nature of a rebound from the too brief and incomplete lesson-books recently devised as a royal road to the acquisition of the Greek language; just as these very lesson-books were themselves a rebound from the former very prolix and philosophically abstract treatises so peculiar to German scholarship. It will thus be seen that Dr. Vollbrecht's effort is the same as that being made by our own instructors, *i. e.*, to strike a golden mean between the grammar too large for the ordinary student to comprehend and the one too brief to be in any sense complete. How well he has succeeded in the latter count may be judged from the fact that his grammar, printed in large, clear type, comprises some 260 pages against the 350 to 450 of our best Greek grammars. Notwithstanding all possible brevity in this *Schulgrammatik*, the *rationale* of forms and of the principles of syntax is not slighted. Indeed, this might be said to be the strong point of the book. If exception is taken to the inadequacy or incompleteness of some of the reasons for varying forms and peculiarities, it must be ascribed to the necessity, in the German mind, of accounting for everything, and, in this case, in terms comprehensible to the students of the Third Form (*Tertianer*).

The following are points of distinct advantage over any of our own Greek grammars: 1. So small a matter as, in the declensions, placing the vocatives *next* the nominatives has the effect of lessening at once the strain on the learner's memory. 2. The unnecessary parade of the *dual* number with all nouns and verbs, in spite of the fact that the cases where the student will ever meet such forms can be counted on the fingers' ends, is avoided by consigning them to small type. Everybody knows that the learning and reciting these forms not infrequently consumes an undue proportion of the student's time and energy. 3. Wherever simple verbs are treated they are immediately followed by their prepositional compounds and an explanation of the varying shades of meaning imparted to the original stems by the prefixed prepositions. This feature will be appreciated by those teachers who know how

cloudy the average pupil's ideas on this subject are, from the very lack, no doubt, of some such systematic representation.

Noteworthy are the lists in the *Anhang* assigning to each variety of inflection all words used in Xenophon's *Anabasis*, and that, too, in the author's characteristically systematic arrangement, itself an education in the subject. Every earnest student has asked himself: How many words does this or that peculiar declension or conjugation affect? This book supplies the answer, and robs a very hazy and formidable subject of all its terrors. The table classifies the words under each declension and conjugation so that each variety of stem and even of accent is massed. There is a valid objection, however, to relegating such important material to an *Anhang*. Its appropriate place is at the end of each inflection.

In the treatment of syntax the salient points of difference between the grammar of Dr. Vollbrecht and those used in America is the development of each case from its primary and most obvious meanings to those more remote and abstract. And so in the treatment of tenses and modes. These subjects thus occupy a more considerable space in this grammar, notwithstanding its small size. From the development of the modes and tenses and the instructive *collocation* of the examples of their use, it is but a short step to the consideration of sentence binding, conjunctives, in the treatment of which subject our grammars are notoriously weak. Next follows naturally the display of the different principal and subordinate clauses, which are easily and briefly handled after the previous treatment of the modes and tenses.

The illustrations, which are copious throughout, are drawn when possible from Xenophon's *Anabasis;* other authors being resorted to where they offer better or perhaps the only illustrations. Teachers will generally agree with Dr. Vollbrecht's statement that these examples in the language of the pupil's daily lessons, and perhaps even familiar to him, are more effective than more far-fetched illustrations.

This grammar of Dr. Vollbrecht will well repay careful study by the progressive teacher, and is in line with such improvements as should be made in Greek grammars for our American schools.

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Primer of the Gothic Language, with Grammar, Notes, and Glossary.—By JOSEPH WRIGHT, Ph. D. New York: Macmillan & Co., 1892, pp. xi, 247. Price $1.25.

Professor Wright has already given us two useful hand-books in this same series, viz., the Middle High German Primer, and the Old High German Primer, both published from the Clarendon Press in 1888. The present book, like its predecessors, aims to furnish beginners with an accurate outline of the main features of the language considered. The Old High German Primer did, in reality, much more than this, in that it justified—of course, still from an elementary standpoint—High German phonetic conditions. The Gothic Primer goes still further, since it enters more fully into the details of phonetics, Germanic and Gothic. It furnishes, in point of fact, both in phonology and in accidence much more than the mere elementary material that one would expect to find in a "primer," and might well have been put forth with a more ambitious title-page.

The contents of the book are in detail as follows. The first sixty-odd pages are given to phonetics. Almost an equal number are devoted to accidence. A short syntax considers elementary matters of case, adjectives, pronouns, and verbs. The last hundred pages contain extracts from the four Gospels and the Second Epistle of Timothy, preceded by a brief account of Ulfilas, the Gothic MSS., and the principal subsidia, and followed by the necessary notes and glosses.

Especial care has plainly been taken with the phonetic part of the book to make it clear and conclusive, and it is particularly to be recommended to workers in every department of Germanic philology. Its statements of the fundamental points that are the common property of all branches of the subject, are not only well and distinctly put, and in most instances without undue succinctness, but they are actually given in not a few cases in a more intelligible form than they are elsewhere to be found in English. The following plan is pursued: The sound values of the Gothic vowels and consonants are first elaborated. This is followed by a consideration of the primitive Germanic vowel system, the special Gothic development of the Germanic vowel system, and the Germanic equivalents of Gothic vowels. A chapter follows on Ablaut; one on the First Sound Shifting, Verner's Law, and other consonant changes in primitive Germanic; and a final one on the

Gothic development of the Germanic consonants. There is, of course, nothing original in all this matter, but authorities—notably Braune and Douse—have been intelligently used, and references to works of unquestioned character, like Brugmann's *Grammar*, Paul and Braune's *Beiträge*, and Feist's *Grundriss*, are made.

In the important matter of transliteration the editors of the Gothic texts are still, unfortunately, agreed to disagree, and each additional output must needs differentiate itself in one or the other of the few points of orthography that admit of varied representation. The text of the present book writes W, elsewhere sometimes V; Q, elsewhere sometimes KW (KV); and the special ligature, now commonly used, but elsewhere sometimes HW (HV); E and O are always given with the macron as sign of length. The pages of text are unusually clear in typography, and are consequently much more attractive than has often been the case in Gothic books. There are no normalizations, but idiosyncrasies in form or reading are properly cleared up in the notes, where their consideration belongs.

It is, happily, no longer necessary to justify the study of Gothic for the light it throws upon general Germanic conditions, but the time has come when it may even fairly be insisted upon as a fundamentally necessary adjunct to the scientific consideration of any one of the Germanic dialects, whether it be Anglo-Saxon, Old Norse, or German. Many of the colleges of the country already regularly offer it in their curricula, but with the excellent subsidia now at hand there should be an increased attention to its study. Balg's translation of Braune's *Gothic Grammar*, and Douse's admirable *Introduction to the Gothic of Ulfilas* covered the ground well before the appearance of the present book, but there was a distinct need of a more elementary work than either, and this place the *Primer* will undoubtedly fill. The author's prediction in the preface that "Anyone, who conscientiously works through the book, will not only gain a thorough elementary knowlledge of Gothic but also of the principles of Germanic philology in general," is sure of realization.

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A Practical Spanish Grammar, with Exercises and Themes.—By EUGENE W. MANNING, Ph. D., Professor of Modern Languages and Literature in De Pauw University. New York: Henry Holt & Co., 1891, pp. vi, 242. Price $1.00.

The situation of teachers of Spanish in our schools and colleges is growing better. Until the appearance of Professor Knapp's Spanish Grammar, now nearly ten years since, it was necessary for them either to use some one of the few and mostly poor grammars made to order in this country by some needy Spaniard, or to import from England a grammar rather expensive and probably not well adapted to American use.

Knapp's grammar was a great improvement and met a real need, but met it only partially. It was too big for the ordinary use of school or college; too big in part from irrelevant matter which would be out of place in any grammar, and in part from discussions out of place in any but a grammar for reference. Moreover, while Professor Knapp's knowledge of colloquial Spanish is probably greater than that of any native American, the purely philological statements in his book need to be scrutinized with great care. Yet, whatever its defects, it has been of great service to the teaching of Spanish in this country.

But with the growth of our relations with the Spanish-American countries and the consequent increase in the number of those who desire to form some acquaintance with the language, the need has been felt of a grammar of less ambitious aims than Knapp's, and with more certainty in the attainment of them. To meet the demand two grammars were published last summer, either of which is for all practical purposes a great advance on Knapp's—Edgren's, published by Heath, and Manning's, which forms the subject of this notice. It is not the intention of the present writer to institute a comparison between the two grammars, further than to say that Edgren's is substantially on the plan of Grandgent's well known Italian grammar, while Manning's resembles in its general arrangement the French grammars of Fasnacht and Chardenal. Edgren's leaves more for the teacher to do; whether or not this is an advantage depends somewhat on the teacher.

Manning's grammar well bears out the promise of the title, that of a practical Spanish grammar. It contains all that is necessary to form an introduction to the Spanish language and literature and very little besides, and the arrangement is

intelligent, convenient, and easy for the student to understand. The exercises which follow each lesson contain perhaps too large a number of words for the student to fix them in his memory; certainly most teachers even would hardly like to promise to remember two or three hundred new words in a new language every week, especially when the new language was only a small part of what they had to learn and to do. But, as appears from the preface, this was adopted deliberately by the author; and, as the result of experience in the class room, must be received with due respect. It certainly falls in with the prevailing notion concerning the teaching of modern languages, that it is important to go over as much ground as possible. Much can be said for each of the two opposing systems, that of reading a large amount rapidly, and that of reading a small amount thoroughly; and there is nothing in Professor Manning's grammar which would prevent a judicious and capable teacher from following out the ideal system—a wise combination of the two.

The arrangement of the verbs, to which the author calls attention in the preface as entirely new, is admirable in compactness and completeness; even the treatment of the uses of the moods is as complete as can be desired in a grammar for ordinary college use. There is not much chance in a grammar of this sort for any great originality, the chief excellence must be in the adaptation to the work of teaching; and here the author seems to me to justify his claim to have had in mind the needs of classes. Every teacher has his own methods, and a book well adapted to one class room may not succeed so well in another. It is difficult, moreover, to judge with confidence of the pedagogical value of a book like this without actual trial, but I should begin the use of Professor Manning's grammar with the expectation of finding my first impressions as to its excellence confirmed.

The principal fault that I have observed in the book is the rather frequent use of slovenly English. What is meant, for example, by this sentence: "Except *n* and *l*, only *c* and *r* are capable of being doubled"? The constant use of parentheses, usually due to the author's desire to be concise, becomes at last irritating, and is not seldom a cause of obscurity. I fear that his views as to the use of *would* and *should*, judging from the indications in the exercises, would not commend themselves to a conscientious teacher of English. I am sorry to

see him falling into Professor Knapp's besetting sin—not often, to be sure, as far as I have observed—and giving us what we do not ask for in a grammar and prefer to find somewhere else. Why should he tell us anything about the hopes and fears of the Spanish liberals? That has little or nothing to do with the history of the Spanish language. The historical sketch with which the grammar closes is sure to be useful and is in general to be commended; in so brief a sketch, however, the first two paragraphs, containing so much that in the nature of the case must remain uncertain, could very well have been compressed into three or four sentences.

Of actual mistakes I have observed very few, and those due no doubt to the effort for conciseness of expression. When it is said, "If one of the vowels of these combinations is accented, they generally do not form a diphthong," the author certainly cannot have forgotten *reino*, *habeis*, *causa*, etc.; the fault must be in the expression. Perhaps the explanation may be connected with the mysterious note 2 on page 5, a note which it may safely be said would forever remain a mystery to a beginner in Spanish. Having dismissed four of the cases of the Spanish Academy grammar, it is a pity that his courage did not go far enough to dismiss a fifth as well. And what is the use of giving an imperative of the third person? The author shows some sixty or seventy pages after the paradigm that it was not due to ignorance.

These, however, are small matters; it is more important to congratulate the author on having written a book which cannot fail to do much for the study of the tongue of Cervantes and Calderon.

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The Story of the Hills. A Popular Account of Mountains and How they were Made.—By Rev. H. N. HUTCHINSON, author of "The Autobiography of the Earth." New York: Macmillan & Co., 1892, pp. xiii, 357.

This is a book well fitted for school libraries, and one that might be read with interest and profit by all teachers of geography. As the author says in one of his sub-titles, it is "a book about mountains, for general readers." In the description of how mountains were formed, he says much about the formation of plains, rivers, lakes, and ocean beds. The author

is conversant with all the modern geological theories, and although quite conservative in his views, he treats the subject in a scientific spirit, yet still in a truly popular manner. He not only tells what scientists now think to be true, but he also, in a parenthetical way, hits at many false notions that prevail among the general public. Probably a few examples illustrating this feature of the book might well be quoted. "In the great series of stratified rocks forming what is commonly called the crust of the earth (an unfortunate term which has survived the time when the interior of the earth was generally believed to be in a fiery molten condition, and covered by a thin coating of solid rock at the surface)," etc. (p. 151). "Fire and water are therefore very important geological agents; but we should say heat rather than fire, because the latter word might convey a false impression" (p. 155). "Now, all this solid masonry is the work of humble coral polypes (not 'insects')" (p. 170). "Such mountains have long been known in popular but unscientific language as 'burning mountains'—a term which is unfortunate, because they do not burn . . . like candles or gas jets" (p. 242). "The word 'ash' is used by geologists in a special sense; and volcanic ash is not, as might be supposed, a deposit of cinders, but mostly of dust" (p. 245). "And here we may remark that the flaring, colored pictures of Etna or Vesuvius in eruption . . . are by no means correct. The huge flames shooting up into the air are quite imaginary" (p. 253). "The words 'upheaval' and 'elevation,' in reference to movements of the earth's surface, are somewhat misleading" (p. 336). The reasons given why both the hottest sunshine and the coldest weather are found on mountain tops, are excellent.

With so many examples of the author's power to perceive and puncture popular errors, it seems strange that he should make a statement so glaringly false and misleading as his remark on p. 63 about the Arctic regions. "The frigid zones, round each of the poles, are regions of intense cold, where for six months of the year the sun is never seen." This error is so common that it may be well to say a few words in regard to it. The north frigid zone is twice as large as the whole United States. Only one spot in this region, the North Pole, which is about five hundred miles farther north than any traveler has yet gone, has six months of continuous night. In fact, more than half of the whole space—almost all of that

which is inhabited—has continuous night, ranging only from twenty-four hours to three months. The author's error, therefore, is no less than it would be to say that "the climate of the United States is intensely cold, snow and ice remaining throughout the year," because it is true of the top of Pike's Peak.

The quotations from Ruskin and other authors are very appropriate and telling. The methodical arrangement of topics is good, and the illustrations, of which there are sixteen full-page ones, are fine.

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Physics by Experiment.—By EDWARD R. SHAW, Ph. D., Principal of the Yonkers (N. Y.) High School, and Lecturer in the School of Pedagogy, University of the City of New York. New York: Effingham Maynard & Co., 1892, pp. 320.

Laboratory Exercises in Elementary Physics.—By CHARLES R. ALLEN, S. B., Instructor in the New Bedford (Mass.) High School. New York: Henry Holt & Co., 1892, pp. 277.

The Socratic notion that all knowledge is a development from within, is gradually permeating modern education and is remodeling methods of teaching. This is proved by the fact that one by one text-books are appearing which throw the responsibility of original discovery upon the student, compelling him to a larger extent to do his own thinking, and, under skillful guidance by the teacher, to draw correct inferences from his own observation and experiment. Among recent publications of this class, Mr. Shaw's book deserves notice. It is happily named, and its plan and treatment accord well with the title. With no premature tell-tale information, which takes the element of curiosity out of his work, the student is at once launched upon a sea of experimentation, and is so carefully piloted that there is no danger of shipwreck, while his pleasure over newly discovered worlds is constant and intense. Nothing is told that he can discover for himself, and yet the knowledge is gained, with easy and natural steps, by means of apparatus that he has largely constructed himself.

The order pursued is: first, the experiment, with careful suggestions as to what to observe; second, a question or two to rightly direct the inference; third, a statement of the law discovered; fourth, questions and problems.

A noticeable feature of the book is the large amount of space given to the treatment of electricity—one-third of the whole number of pages being devoted to it, although only those phases which are of practical importance receive detailed attention. The accuracy with which electrical apparatus is explained, and the clearness with which the principles involved in the use of the telegraph, telephone, electric bell and other instruments are demonstrated, virtually do away with the difficulty which the ordinary beginner experiences in this branch of the study of physics.

The book claims to be only elementary. It is elementary in the sense of not dealing with what is technically known as "higher physics"; but every principle that is contained in an ordinary high-school course in physics is amply treated, or rather, found out by the student's individual experiments, while much of the book could be used with profit in the lower grammar grades. The order of topics, the inductive method of treatment, the expunging of what is purely theoretical, the adaptation of information to the growing interest of the student, the clear statements of results obtained by experiment —all are *prima facie* indications that the author is a practical teacher, who through years of labor has studied the needs of the pupil, as well as gained for himself a mastery of the subject-matter of physics.

Allen's *Laboratory Exercises* is intended to accompany any standard text-book on physics. There are two editions, one for the pupil and one for the teacher, the two differing only in some practical suggestions to the teacher that are not contained in the pupil's edition.

Beginning with magnetic phenomena, "where work is simplest and most stimulative to attention," other topics succeed in the following order: Current electricity, mensuration, density and specific gravity, heat, dynamics, light and sound. The mode of procedure is "through experiments involving the measurement of a single value by means of some single instrument, to the more complicated quantitative determination of dynamics." This rational progression from simple experiments to the more intricate is valuable, but the chief merit of the book lies in its full, lucid explanations and directions. Under each experiment are given a minute description of the apparatus, a statement of the object of the experiment, and the mode of manipulation. The majority of the experiments are

original and novel, and where old familiar ones are used they are put forward in an attractive style.

It is, as its name indicates, a real guide to laboratory work. It demands of the student of physics that the results of his experiments be as carefully recorded as those of chemistry. For this purpose there are suggestive tables for recording graphically to the eye the results obtained. This method compels the student to keep a notebook, a method recognized as the only proper one in scientific study.

As a practical laboratory guide for teacher and pupil the book has no equal.

A. B. P.

Notes on Recent Pedagogical Literature.

FRENCH SCHOOLS THROUGH AMERICAN EYES. A Report to the New York State Department of Public Instruction.—By JAMES RUSSELL PARSONS, Jr., Inspector of Teachers' Classes. Syracuse, N. Y.: C. W. Bardeen, 1892, pp. 136. Price $1.00.

Students of education should insist that Mr. Parsons undertake for England, for Italy, for Austria, and for the Scandinavian countries what he has done so admirably for Prussia and for France. His description of elementary education in Prussia (EDUCATIONAL REVIEW, II: 99) is well known, and the present volume is in every respect its equal and in some its superior. In language, in arrangement, and in proportion it is a model report, and may well serve as a standard book of reference in the study of contemporary educational systems.

LE RÔLE SOCIALE DES UNIVERSITÉS—Par MAX LECLERC. Paris: Armand Colin, et cie, 1892, pp. 66. Price 1 fr.

M. Leclerc has written a vivacious and rose-colored account of the University Extension movement in England. He urges France to acquaint itself with this phase of university work, and imitate it as soon as the universities are reconstituted by law. But surely Paris has abounded for years in lectures and classes that are all that University Extension claims to be.

NUOVI SCRITTI PEDAGOGICI.—Di P. VILLARI. Firenze: Sansoni, 1891, pp. 374.

This volume brings together some of the educational essays of the distinguished scholar who was recently the Italian Minister of Public Instruction. The most important of them is the well-known one on manual training in elementary schools.

Villari identified himself with the manual training movement when it was new and unpopular, and by his report on what progress in manual training was being made elsewhere in Europe did much to make it understood and appreciated by his countrymen. The remaining essays are important contributions to the literature of secondary education.

MATHEMATICAL RECREATIONS AND PROBLEMS OF PAST AND PRESENT TIMES.—By W. W. ROUSE BALL, Fellow and Lecturer of Trinity College, Cambridge. London and New York: Macmillan & Co., 1892, pp. xii, 242. Price $2.25.

Students and teachers of mathematics will find this book of Mr. Ball's very entertaining and instructive, but it is not easy reading. It contributes, from one point of view, a good deal to our knowledge of the history of mathematics; from another, it clothes some leading mathematical abstractions with a concrete form, and so aids greatly in appreciating their full significance. It discusses problems of chess and cards, sailing quicker than the wind, the fifteen puzzle, magic squares, the quadrature of the circle, perpetual motion, hyperspace, and many similar topics in mathematical physics.

THE TEACHER'S MANUAL OF GEOGRAPHY.—By JACQUES W. REDWAY. Boston: D. C. Heath & Co., 1892, pp. 174.

This is worth all of the other teacher's aids in geographical teaching put together. It discusses fundamental principles and does not descend to devices; which must, after all, be worked out by every teacher to meet her own specific classroom needs. Modern scientific, not popular, geography is fully discussed by Mr. Redway, and a well-chosen bibliography is appended to his closing chapter. The book is to be unreservedly commended.

N. M. B.

X

EDITORIAL

The article by Mr. H. G. Wells, printed elsewhere in this issue, is respectfully commended to the attention of those persons who believe that education is to be reformed by means of examinations conducted by a specially constituted body, and to those who urge that degrees and other marks of academic distinction should be conferred upon examination only.

One of the most satisfactory sections of the law regarding the Regents of the University of the State of New York, passed last spring, is that which makes it a punishable offense to use the term "college" or "university," without proper authority either from the legislature or the Regents, after January 1, 1893. When that date arrives a good many bogus institutions of one kind or another will be forced to give up one of their chief means of imposing upon the public. Colleges of typewriting, of horseshoeing, of embalming, and other useful arts—all of which now exist—will also be obliged to seek some humbler and more fitting title.

A few weeks ago there assembled, and fulminated, in Newark, N. J., as intensely un-American and treasonable a body as this country has seen in a long time. It was called a German Catholic Congress, but it represented an element of population that is largely found among the Lutherans of the Mississippi Valley, as well as among the German-speaking Catholics. This congress was alien in speech and in spirit, and was treasonable in a true sense because it declared war upon cherished American institutions. It specifically indorsed the movement known as Cahenslyism, which is, however, no longer dangerous, and said some very reckless and untruthful things about the public school system. Numerically small as this body was, it unfortunately represented a well-organized and shrewdly manipulated constituency. There are not

wanting signs that this constituency proposes to cripple the American system of common schools, if possible. Already in the State of Wisconsin it has captured one political party and forced a second into a cowardly disavowal of its convictions. In the neighboring State of Illinois, too, one political party is at its beck and call, while the other is only half-hearted in opposition to it. To his honor be it said, Governor Fifer of Illinois has boldly defended the common school system on the stump, and has declared his intention of holding fast to his principles even if temporary defeat for him and them be the result.

The question at issue with these German-speaking Catholics and Lutherans is whether the American Commonwealths shall or shall not pass and enforce a law that every child must receive an elementary education in the English language. It is a deliberate untruth to say that such a law imposes any harsh restrictions upon private or parochial schools, or that it interferes with a parent's right to bring up his children in the religious faith of his choice. It does nothing of the sort. But it does say that every child must, in the interest of social order and political prosperity, receive at least an elementary education in the English language. On this issue the battle must be joined. Neither the listlessness of the well-to-do nor the demagogic cries of politicians can postpone it much longer.

The sort of reverse that any genuinely broad and altruistic movement of this kind must meet with at first, is seen in the case of Faribault. Readers of the EDUCATIONAL REVIEW know what it is that has made that little Minnesota town famous. There an object lesson was being given, with a common sense school board as instructors, in the possibilities that a joining of forces by public and parochial schools affords. Intelligent people everywhere, including thousands of Catholics, were watching the experiment with sympathy and interest. The term of office of the school board expired, however, and in the resulting election extremists of both types joined hands to defeat the re-election of the men who had inaugurated the "Faribault plan." They were successful, and for the time being the development of the plan may be checked. The courage and statesmanship of Archbishop Ireland and the

essential equity of the plan itself, however, afford the best of reasons for believing that the reverse is but temporary. Moreover, it is not at all certain that the newly elected school board will undo what has been accomplished by their predecessors.

The friends of educational reform in Ohio believe that a real step forward was taken at the last session of the legislature. Under the old law, which continues in operation until next May, teachers are employed, and salaries fixed, and the length of the school year, determined—beyond the minimum requirement of six months enforced by the laws of the State—by a district board of directors for each district, three in number; while a township board of education, consisting of one member of each of the boards of directors in the various districts, determines courses of study, selects text-books, and fixes the amount of the tax to be levied for school purposes. This division of authority, while apparently very simple, has led to many conflicts and misunderstandings. Moreover, it assumes that three men in every district can be found ready to do the work of school directors, and with intelligence enough to select good teachers and pay them a proper compensation for their work. It assumes, also, that the board that provides the money should not be the board that spends it.

The new law obviates these conflicts and escapes these false assumptions by doing away with the district board of directors altogether. The educational affairs of a township are to be in the hands of a township board, to consist of one member from each district in the township. If the schools are poor, everyone will know where the fault lies. In a word, the new law fixes the responsibility for the success of the schools on a single body, increases the probability that the schools will be managed by intelligence and competence, and that a higher tax will be levied for their maintenance, and leads logically to a measure that ought to do much to increase the efficiency of the public schools—township supervision.

The calendar for 1892, issued by the College of Preceptors in London, gives evidence that a great deal of excellent work is being done by that unique institution. Established in 1846 and incorporated by Royal Charter in 1849, the College has performed a great service both to teachers and to education

generally. Periodical examinations are held at which teachers are tested as to their qualifications and fitness to give instruction. Diplomas are issued to those who pass these examinations satisfactorily, and they have come to have a recognized standing and significance. It is noteworthy that the theory and practice of education is included in every examination of this kind. In 1854 the College instituted examinations for pupils as well as for teachers, and many schools now submit their pupils to this test of their efficiency. During 1891 over 16,500 candidates for pupils' certificates were examined, and 4800 schools came under the influence of the College.

The College now occupies a commodious building in Bloomsbury Square, erected and furnished at a cost of about seventy-five thousand dollars. There lectures are given, and an educational library is maintained. All persons engaged in the work of education may be admitted to membership, if elected by this Council; but election is withheld unless the applicant has passed one of the College's examinations or its equivalent elsewhere. The present Dean of the College of Preceptors is Mr. H. W. Eve, the head master of University College School.

A recent German publication gives the number of Doktor-Dissertationen that have been issued under the auspices of the various universities of the empire during the five years ending with 1890, as 9082. Medicine heads the list with 4585 dissertations or more than half the total; while theology stands lowest with 48. The medical faculty of Würzburg seems to be most in repute, and heads the list with 881 theses. Berlin comes second with 707; Munich third with 566, Leipsic is last with only 3. On the other hand, in philosophy Leipsic stands at the head, having granted 662 degrees against 411 given at Berlin, and 88 at Würzburg. It is interesting to note that no degree in theology was given at Erlangen, Freiburg, Heidelberg, Jena, or Tübingen; while 12, or one-quarter of the entire number, are credited to Munich. In some of the universities there is little variation in the number of degrees given from year to year; in others there is a marked increase. Berlin rose from 190 in 1885 to 268 in 1890; Bonn from 65 to 130, Erlangen from 52 to 177; Rostock from 19 to 45. Breslau, Stras-

burg, and Tübingen show a slight decrease. In the entire period the whole number of degrees granted rose from 1491 in 1885–86 to 2043 in 1889–90.

Another set of statistics from the German universities that is always interesting relates to the number of foreigners enrolled among the students. During the last semester there were 28,053 students at the 21 universities, and of these 1862 were foreigners. The vast majority of them, 983, were studying philosophy and science; 465 pursued a medical course, 246 a law course, and 168 studied theology. Berlin claimed 568 of the number, Leipsic 242, Munich 190, Heidelberg 164, and Halle 114.

The nine Prussian universities are now more strongly manned than ever before. They command the services of 536 professors, 23 honorary professors, 384 Privat-Docents, and 73 "Sprach und Fachlehrer." There are 1221 teachers in all. The average professorial salary is 5534 marks, the minimum 1509 marks. The professor of law at Göttingen, von Ihering, who died a few months ago, received the largest salary, 12,600 marks. The extraordinary professors receive an average compensation of only 2248 marks.

The department of public instruction, in France, asks for 176,000,000 francs for next year's expenses. Of this sum, 15,000,000 francs are for higher education, 19,000,000 for secondary, and 125,000,000 for elementary. The remainder is needed for special schools and the central administration. Since 1875 the attendance at the university faculties has more than doubled. It is now over 22,000. At least half of this number are enrolled in Paris.

Of all European countries Greece alone consistently carries out the principle of free education from kindergarten to university. As a result it has a larger proportion of highly educated men than Germany. At the present time the University of Athens has no fewer than 2500 students. It so happens, however, that the national exchequer needs replenishing, and the prime minister, M. Tricoupis, has hit upon the idea of assessing a small tax upon students in the secondary schools and universities. He hopes in this way to raise about $250,000 annually.

The annual report of President Low of Columbia College is a businesslike review of the events of the past year in the history of that institution. It makes no new recommendations and discusses no distinctively educational questions. The purchase of a new site for the College and the great internal changes that have taken place in its organization, were made public at the time of their occurrence, and the country at large is reasonably well informed concerning them already. The fact, however, that any American institution for the higher education is courageous enough, and strong enough, to face the responsibilities involved in contracting to pay two millions of dollars for a new site, is worth repeating and emphasizing.

The statistics contained in the report are of general interest. The library was increased by 15,408 volumes, exclusive of pamphlets. The total enrollment of students was 1573, a falling off of 178 as compared with 1890–91. This loss was wholly in the Law School, and is only the anticipated result of raising the standard and increasing the efficiency of that department of the university. The students came from forty-one States and Territories and from twenty-one foreign countries, which makes Columbia anything but a "local institution."

Eighty-seven colleges, fourteen foreign institutions of collegiate rank, and nineteen medical schools were represented by their graduates on the Columbia roll. Indeed, Columbia's claim to be a university rests almost entirely upon the fact that a large proportion of its students—last year 29.30 per cent.—already hold a bachelor's degree. The undergraduates only amount to 18.98 per cent. of the student body; but non-graduate professional students of law, medicine, and applied science amount to 51.72 per cent. The teaching staff numbers 226, of whom 72 are of professorial rank. During the year the College received gifts amounting to $296,973.06, and pledges amounting to $289,000—a total of nearly $586,000. Degrees appear to be granted with some care, since only 269 were voted, although there were 337 candidates for them. Five honorary degrees were given by the Trustees, but happily these were empty titles and not the university honors of Master of Arts or Doctor of Philosophy.

If President Coulter is correct in his analysis and exposition of the true university spirit,[1] how can there be such a thing as a sectarian university? A sectarian institution of any kind gives its adhesion to some specific statement of principles. Such a statement must control and direct the activity of the institutions that profess their belief in it. A university, on the other hand, is for the purpose of discovering and teaching truth, not defending some form of statement. It would be embarrassing for an institution calling itself a sectarian university to discover, in the capacity of a "university," anything that contradicted the creed that it professed in its capacity as "sectarian." And yet, presumably intelligent men and women go up and down the country haranguing the multitude and begging endowments for "sectarian universities."

There was the usual representation from the leading colleges and secondary schools at the seventh annual meeting of the New England Association of Colleges and Preparatory Schools, held in Boston on October 14 and 15. The interest centered upon the discussion of the subject, "Methods of Determining the Qualifications of Candidates for Admission to College." It was opened by Mr. Francis A. Waterhouse, head master of the English High School, Boston. Mr. Waterhouse discussed the two methods of admission—by examination and by certificate—in a calm and deliberate way. His paper was substantially an argument for retaining the examination method, though he pointed out the wisdom of a combination of the certificate plan with that method under some circumstances. The inadequacy and the injustice, under certain conditions, of a single test—the examination—could, it was shown, be corrected by bringing to bear the candidate's school record. The wisdom of such a recommendation is obvious. As a matter of fact, it is the course adopted at present in many individual cases where the candidate's school record guarantees success, although his stated examination was a failure. Many candidates admitted in this way as special students afterward become "regular," and are numbered among the most successful.

[1] See his article on pp. 366–71.

Admission by certificate is guarded in two ways—by inspection of accredited schools, and by "college criticism," *i. e.*, by determining from the student's first year in college whether he was adequately prepared. But, as was pointed out, the inspection of schools is apt to be lenient. When thorough, it is difficult, expensive, and for most colleges impracticable.

President Carter of Williams College declared himself a believer in the educational value of examinations, but he denied the fitness of the examination to test a candidate's preparation for college. It appears from an experience of eleven years that Williams College is unable to perceive any lowering of the standard of admission, or of the quality of the schools remaining accredited schools, under the certificate plan. Of course such facts do not of themselves establish the validity of the certificate plan; for, as Mr. Waterhouse pointed out, the preparatory schools are obliged to fit some of their pupils for colleges requiring examinations, and the effect of this requirement is felt throughout the entire school.

It was interesting to note during the discussion that several of the best known preparatory schools have declined to avail themselves of the privilege apparently implied in the certificate system. The teaching of such schools is not modified by either system of admission to college. They have a standard and they work to realize it. Moreover, all such schools agree that it is almost unknown to have a boy rejected who ought to be admitted, or *vice versa*.

The most outspoken opposition to the certificate plan, on the part of the preparatory schools, came from the principal of the Roxbury Latin School. He urged the very great educational effect of the examinations upon the aims and methods of the schools themselves, and pointed out that the Harvard admission examinations in geometry alone had revolutionized the teaching of that subject. The effect of the examinations in other subjects was hardly less striking. He believed that "the certificate system under existing conditions is as bad as it can be," and that those colleges that can afford to drop the certificate system should do so. But the testimony was by no means all opposed to the certificate plan. Some strong commendation of it was given by other colleges besides Williams, and by a number of the secondary schools.

Some details of the certificate system were characterized as humiliating and unnecessary; such as, inquiries concerning the exact amount of Latin read, or, if the prescribed number of lessons in Greek composition had actually been taken. It was, however, shown by representatives of colleges that such questions are necessary safeguards against misunderstandings, and as an assurance—from some schools—that the requisite amount of preparatory work has really been done—irrespective of the published course of study.

Such considerations lead to the conclusion that, in spite of the testimony in favor of admission by certificate, the time is not yet ripe: some modification of that plan or some wiser plan must be devised. Possibly the solution of the question will be found in the combination of the two methods of admission, a suggestion made both in the paper and during the discussion.

When President Eliot was called upon, late in the discussion, he affirmed his confidence in the examination method, both because the examination as at present conducted is a test of power and because of its effect upon the schools. Referring to his western trips during the past two years, President Eliot spoke of the great leniency with which the certificate system is administered by some colleges of the West, where a very short visit (an hour or less) by a single professor might be sufficient to place a school upon the list of accredited schools. Such inspection is manifestly worthless for the purpose of determining the organization and work of a school. President Eliot might have gone farther and stated that many a school is "accredited" by Western colleges and universities, and by Eastern ones too, that is never inspected at all by the college or university officers; so that the college or university has no knowledge whatever, from personal observation, of the work those schools are doing.

Professor Palmer's address on "Ethical Training in School and College," was a very conservative presentation of the subject. The old ground of the dangers involved in any direct moral instruction was traversed, and any instruction in ethics was relegated entirely to the college and the university. The distinction between ethics and morals was drawn. The danger

of making children aware of the machinery of their own moral consciousness was well brought out. It might be said, of course, that a moral consciousness of some sort is sure to be developed, and that it is as desirable to stimulate and direct this as it is to rouse and train the pupil's intellectual activity and habits. Professor Palmer would make all ethical training in the school dogmatic in form, and restrict it to instruction in a sense of honor and common courtesy.

The discussion upon "Theoretical Knowledge and Practical Facility in Algebra," took a very practical turn. Professor Peirce showed that the number of fundamental principles with which it is essential that the elementary student should become acquainted is very small, and that facility in manipulation is, in elementary algebra, the great aim. This naturally led to recommending much practice in handling algebraic expressions, especially those expressions entirely literal. Professor Safford of Williams College urged again the necessity of more time for algebra, suggesting that the grammar school is the place where time is to be had for it.

An important duty was added to the work of the Committee to confer with the Commission of Colleges in New England on Admission Examinations, namely, that they consider some one subject of instruction at a time with a view to getting a consensus from the schools and the colleges concerning the amount, the selection of subject-matter, and the method of teaching. This, it will be observed, is exactly what the National Educational Association has undertaken systematically on a large scale.